DOCTORAL THESES SUBMITTED IN FACULTIES OF SCIENCES AND LIFE SCIENCES ALIGARH MUSLIM UNIVERSITY - 1970-1995

A Select Annotated Bibliography

DISSERTATION

Submitted in partial fulfilment of the requirements
for the award of the degree of

Master of Library and Information Science

BY

MOHD. RASHEED

Roll No. 95 LSM - 06
Enrol. No. X - 4847

Under the Supervision of

MR. S. MUSTAFA K. Q. ZAIDI
(READER)

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE
ALIGARH MUSLIM UNIVERSITY
ALIGARH (INDIA)

1996

DEDICATED

To

those who sacrificed all for me

I would sacrifice

some thing for them

C O N T E N T

ACKNOWLEDGEMENTS

First of all my head is bowed before **Almighty Allah** Taala, whose mercy bestowed upon me the capability to achieve this target.

I am grateful to my supervisor **Mr. S.M.K.Q. Zaidi,** Reader, Department of Library & Information Science, A.M.U. for his excellent guidance, constant support and trust throughout the course of this study. Without his guidance this work would have not been completed. At the same time I am thankful to **Mr. Shabahat Husain,** Chairman, Department of Library and Information Science, A.M.U. for his kind attitudes, sympathy and full cooperation in all respects.

I am highly thankful to **Mr. S.Hasan Zamarrud,** Reader, Department of Library and Information Science, A.M.U. for his full cooperation, useful and valuable suggestion especially in rendering the authors and other difficulties faced during the work.

I am greatly indebted to my parents who encouraged me at every step of my life, and prayed for my success.

My heartful thanks to my brothers **Mr.Wajiullah Khan, Mr. Hikmatullah Khan** and **Mr.Abdul Samad Khan** and my sisters **Ms.Mariya and Ms.Khudeja** and also my brother is law **Mr.Abdul**

Haseeb Khan and Mr.Arif Qamar Khan, who encouraged me and gave support at all the times. Special thanks are due to Miss Tahzeeb Laqa, Miss Yasmeen Naseer and Miss Faria Nuzhat.

Thanks are due to Mr. Mohd.Younus and Mr. Mohd.Asad for their inspirational suggestions and comments.

I feel it my duty to extend my gratitudes to my friends and classmates especially to Naved, Waseem, Abdul Razaq, Ayaz Ahmad, Javed Iqbal, Saleem Adil Zargar, Mohd.Ajmal, Salman Majid for their full cooperation and help they rendered upon me.

Thanks are due to Mr.Baqar who provided me the necessary facilities regarding the work.

My thanks are due to the staff members of the Department of Library and Information Science A.M.U.

Last but not least, I must Thank to Mr.Om Prakash for taking pain in typing this dissertation.

ALIGARH

(MOHD. RASHEED)

PREFACE

This bibliography is a small attempt in the wider endeavour of bibliographic control, resulting from knowledge explosion in the last century. Different experts have tried to quantity the volume of this explosion, but whatever the different assessments, all are agreed that to avoid duplication of scientific and technical research, and the consequent wastage of talent, time and manpower, uptodate bibliographical services should be provided.

One area in which these are urgently needed is that of doctoral dissertations, In our country the Association of Indian Universities has made a start by publishing lists of doctoral dissertations submitted in Indian Universities since 1857, when university education started in India. But a major drawback is that we do not have annotations of these dissertations, another is that some universities do not send complete information because of certain administrative problems.

I.11 SCOPE

This bibliography has tried to redress the problems as far as Aligarh Muslim University is concerned. The period, 1978-95, was selected keeping its usefulness in mind. Although earlier researches have been superseded by later research efforts, this period still has significance for future research, as a guide to what has been done and what needs to be done, to fillup the gaps in knowledge. This bibliography will serve as a map of the research efforts in the Faculty of Sciences of Aligarh Muslim University. As such it excludes the applied sciences, meaning thereby, the disciplines of Engineering, Medicine and Computer Science because they form separate faculties here. The subjects included are Agriculture, Bio-chemistry, Botany, Chemistry, Geography, Geology, Mathematics, Physics, Statistics and Zoology. In all 200 thesises are dealt, subject-wise details of these

theses is given below :-

S.No.	Subject	Number of Theses
1.	Agriculture	04
2.	Bio-chemistry	26
3.	Botany	10
4.	Chemistry	18
5.	Geography	23
6.	Geology	35
7.	Mathematics	13
8.	Physics	39
9.	Statistics	08
10.	Zoology	24

It is evident from the above chart that the bulk of theses are from Physics which shows large potential of Physics Department to produce the research scholars.

I.12 METHODOLOGY

The proceedure followed in preparing the annotated bibliography was as follows :-

1. The list of Ph.D. Theses in the Maulana Azad

Library, Aligarh was cross checked with that of Registrar's Office to find out if there were missing in the Library.

2. As the Library keeps all theseses irrespective of the subjects in a single chronological order, the theses in the science subjects were mostly taken out and arranged subject wise.

3. After this, entries were made on 5"x7" cards, keeping in mind the Anglo American Cataloguing Rules, 1978, for dissertations (manuscripts) (Rule No. 2.7B13) and for notes (Rules No. 1.7B13).

One of the biggest problems was rendering the name of the authors, as except for two or three all were non christian names and presented typical examples of the problems encountered when working with Indic names. As AACR-II, 1978, do not have very elaborate rules for this problem, therefore the help of local experts was taken. And an effort was made to avoid confusion as much as was possible.

The entries were slightly modified keeping in view the exigencies of space and the fact that all of the entries concerned Ph.D. Theses submitted

to the AMU in typescript and include abstract consequently Author was followed by the title and title was followed by the name of the Department followed by the year of submission (not the year of acceptance) followed by the collation information and the notes, all in one paragraph. From the note section three portions, as given in the rules, were ommitted. These were the sections stating that the theses is in typescript and the section showing the nature of the theses and the University where it was submitted and the section including abstract. It is justified in view of the facts noted above.

For example entry No.1, strictly according to rules should have been rendered in the following manner :-

Entry by rules : -

Kulshrestha, Madhu.

Impact of air pollution on root colonization by vamfungi and root nodulation on black gram/ Madhu Kulshrestha. --1995.

184 l. ill.

Typescript (Carbon Copy).

References : 135 - 69 l.

Includes abstract.

Supervisor : M.Wajid Khan

Theses Ph.D. - A.M.U.

Modified entry :-

Kulshrestha, Madhu. Impact of air pollution on root colonization by vamfungi and root nodulation on black gram. Deptt. of Agriculture. 1995. 184 l. ill. References : 135-69 l. Supervisor : M.Wajid Khan.

4. After this, annotations were made. Annotations are defined as "Notes which suppliment the information provided by title". Here the annotation have tried to provide experiments made, the results obtained and conclusions drawn. These are neither purely indicative nor wholly descriptive and evaluative.

5. On completion of the annotations, subject headings were assignment, taking help from the schedules of colon classification 6th ed., Dewey Decimal classification 20th edition, wherver they could be found, although, the final subject heading list does not conform closely to any of the schems. Efforts were made

to individualize the subjects of each entry without going in too much details of subject matter.

6. The subject headings were arranged in an alphabetical sequence of various elements.

7. In the end, three separate alphabetical indexes were prepared viz. title index, author index and supervisor index providing reference to the various entries by their respective numbers.

A subject index has not been provided because the bibliography itself isa arranged alphabetically through subject headings and, the subject index would have just duplicated the same sequence.

1.2 ARRANGEMENT :

The material in this bibliography has been arranged in the following manner :

1. Preceding the chapter, under discussion, a brief introduction of the bibliography is given. This has information about the scope and methodology adopted in preparing this bibliography.

2. After this section, is a brief outline of the subject accompanied by diffusions of various disci-

plines which are further elaborated by a concise history of science and of research methods. This is followed by a history of departments of science in A.M.U.

3. The bibliography proper followes this. The arrangement here is subjectwise taking the subjects in an alphabetical manner. First come the theses submitted in Agriculture followed by Bio-chemistry followed by Botany and so on till Zoology.

All entries have been individualized by separate subject headings. Each subject heading is given capital words followed in the next paragraph by the name of the author. title, department, year and collation. The note section gives information of accompanying bibliography and supervisor's name. A sample entry will make this clear.

Simple entry :

AGRICULTURE, BLACK GRAM, ROOT-COLONIZATION, ROOT-NODULATION by VAMFUNGI effect of AIR POLLUTION.

1

1/2. Kulshrestha, Madhu. Impact of air pollution on root colonization[3] by vam fungi and root nodulation on black gram. Deptt. of[4] Agriculture. 1995.[6] 184[7] l. ill.

[5] [8]
References : 135-69 l. Supervisor : M. Wajid Khan.
9

Effects of two gaseous air pollutants (SO_2 and O_3)

and one particulate air pollutant (fly ash) on plant growth and yield parameters, leaf cholorophyll, seed protein, root colonization and spore production by a VAM fungus, (Glomus caledonicum), root nodulation by Rhizobium. sp., phosphorous and nitrogen contents of black gram plants were determined under artificial treatment conditions.

Item No.1 shows the subject, No. 2 is serial number, No.3 is the name of the author, No.4 the title of the theses, No.5 Department in which the thesis is submitted, No.6 year of submission, No.7 collation, No.8 note section showing references, No.9 second note showing the name of the Supervisor and No.11 is annotation or bibliography.

4. In the end three indices have been provided. These are the author index, title index and supervisor index. These cater to the three other possible entry points for search of literature. All are arranged alphabetically.

The title index gives a single alphabetical listing of titles of all thesis, the arrangement has been done in keeping the ALA rules for filing the Cards in mind.

PART - ONE

INTRODUCTION

BRIEF OUTLINE AND SURVEY OF SCIENCE

II.1 DEFINITIONS:

The word science is applied to wide variety of disciplines or intellectual activities which have certain features in common. Usually a science is characterized by the possibility of making precise statements which are suspectible of some sort of check or proof. This often implies that the situation with which the special science is conerned can be made to recure in order to submit themselves to check, although this is by no means always the case. There is also usually the implication that the subject matter of the individual science is something in world of phenomena. According to the Oxford Illustrated Dictionary science is defined as "systematic and formulated knowledge" or branch of knowledge, organized body of the knowledge that has been accumulated on a subject".

Science is divided into two :

Pure Science : "One admitting of quantitative treatment".

Natural Science : "Science concerned with the natural world".

Main Sciences are as follows :-

1. Agriculture

2. Bio-chemistry
3. Botany
4. Chemistry
5. Geography
6. Geology
7. Mathematics
8. Physics
9. Statistics
10. Zoology

1. AGRICULTURE :- The art and science of crop and live stock production. In its broadest, agriculture comprises the entire range of technologies associated with production of useful products from plants and animals, including soil cultivation, crop and live stock management and the activities of processing and marketting. Agriculture encompasses the whole range of economic activities involved in manufacturing and distributing the industrial inputs used in farming; the farm production of crops, animals, and animal products; the processing of these materials into finished products; and the provision of products at a time and place demanded by consumers. Many different factors influence the kind of agriculture practiced in a particular area. Among these factors are

climate, soil, topography, nearness to markets, transportation facilities, land costs, and general economic level. Climate, soil, water availability, and topography very widely throughout the world. This variation brings about a wide range in agricultural production enterprises. Certain are tend toward a specialized agriculture, whereas other area engage in a more diversified agriculture. As new technology is introduced and adopted, environmental factors are less important in influencing agricultural production patterns. Continued growth in the world's population makes critieal the continuing ability of agriculture to provide needed food and fibre.

2. BIO-CHEMISTRY :- Bio-chemistry is the study of living system from a chemical viewpoint. Thus it is concerned with the compounds and reactions that occur in plant and animal calls. Most of the substances in living things including carbohydrates, lipids, proteins, nucleic acid and harmones are well-defined organic substances. However the metabolic and regulatory process of these compounds and their biological functions are the special province of biochemistry. One of the major area is the

characterization of enzymes and their factors, and mechanism of enzymes catalysis. Other topic of interest include the transport of ions and molecules accross cell membranes and the target sites of neuro transmitters and other regulatory methods and thinking have contributed extensively to the fields of endocronology, genetics, immunology, and virology.

3. BOTANY :- That branch of biological science which embrace: the study of plants and plant life. According to specific objectives of the investigators botanical studies may range from micro scopic observations of the smallest and obscurest plants to the study of the trees of the forest. One botanist may be interested mainly in the relationships among plants and in their geographic distribution, whereas another may be primarily concerned with structure or with the study of the life processes taking place in plants.

Botany may be divided by subject matter into several specialties, such as plant anatomy, plant chemistry, plant cytology, plant ecology, plant embroyology, plant genetics, plant morphology, plant physiology, plant taxonomy, ethnobotany and paleobotany.

4. CHEMISTRY :- The science that embraces the properties composition and structure of matter, the changes in structure and composition that matter undergoes, and the accompanying energy changes. It is important to distinguish chemical changes implicit in this definition and change in physical form. An example of the latter is the conversion of liquid water to solid or gas by cooking or heating; the water substance is unchanged. In chemical change such as the rusting of iron the metal is consumed as it reacts with air in the pressure of water to form the new substances iron oxide.

Modern chemistry grew out of the alchemy of the Middle Ages, an attempts to transmute base metals into gold. Seminal observations were made in the early eighteenth century on the changes in volume of air during combustion in a closed vessel, and the French Chemist Antoine Lavoisier in the 1970s interprated these phenomena in essentially modern terms.

Traditionally, five main sub division are designated for the activities, professional organisations and literature of chemistry and chemists.

1. Analytical Chemistry

2. Inorganic Chemistry

3. Physical Chemistry

4. Organic Chemistry

5. GEOGRAPHY :- The study of the Earth's landscapes and their change with time. Landscapes may include ever-changing natural physical or biological system such as climate, landforms, or vegetation (Physical Geograph), or they may include ever-changing human designs such as cities, road systems, or baru types (Human Geography). Geography is a very broad science that deals with subject matter of a spatial nature that changes through time. As such, its boundries often overlap with other sciences. The word geography immediately seems to bring to mind maps and mapmaking. One of the more important trends in geography is the ever-increasing use of statistics and remotely sensed imagery (radar, photography, impulses) from high-flying aircraft and space craft. Geography is a science with a long history and deep roots with the other sciences and has an exciting future. Other branches of geography are, Bio-geography, climatology, Geomorphology, hydrology, mathematical geography, pedology, agricultural geography etc.

6. GEOLOGY :- Geology can be defined simply as the study of the Earth. The study of Earth's materials and of the processes that shape them is known as physical geology. Historical geology is the record of past events. Emergy from two sources continually produces changes in the Earth. Radiant energy from the sun causes ocean currents, winds, waves, rainfall, weathering, soil formation and a myraid of other physical and chemicalchanges in the outermost rocky portion of the solid Earth (the lithosphere), in the fluid envelopes of water (the hydrosphere), and air (the atmosphere), and in the totality of living matter (the biosphere). Heat energy inside the Earth causes slow convective movements deep in the Earth's interior. The internal motions break the rigid lithosphere into large fragments called tectonic plates, which move laterally at velocities upto around 5 in (12cm) a year. Collisions and other interactions between moving plates of lithosphere produce the Earth's gross topography the ocean basins, mountain ranges, even the space exploration of the other plannets and their moons, the study methods of geology have been used in comparative planetology, in which the origin, development, and history of all solid bodies in the solar system are compared. Geology became a universal science in the second half of the

twentieth century, and an understanding of the geological evolution of the Moon, Mass, Venus and other planetory bodies has provided a new perspectiv on the Earth's history. Each of the following branches of geology is considered a separate science by many. Mineralogy is the study of the composition, structure, and properties of minerals, Seismology is the study of earthquakes and their effects. Engineering geology is applied to design of structures and the like. Oceanography is the study of oceans.

7. MATHEMATICS :- Mathematics is frequently encountered in association and interaction with astronomy, physics, and other branches of natural science, and it also deep-rooted affinities to the humanities. Actually, it is a realm of knowledge entirely into itself, and one of considerable scope; the word mathematics stems from a root which means learnable knowledge. Mathematical knowledge is commonly deemed to have a high degree of validity, irrespective of culture conditioning and predilection, although it can be argued that in the past, cultural settings have affected its development noticeably. Mathematics is not a branch of natural science itself. It does not deal with phenomena and objects of the external world and their relations to each other but,

strictly speaking, only with objects and relations of its own emagery. Methematical figures in two- or three-dimensional geometry are largely idealizations of objects occuring in the physical world, but figures in n-dimensional space for general n no longer are such idealization. Mathematics is an indispensable medium by which and within which science expresses, formulates, continues, and communicates itself. Mathematics not only specify, clarify, and make vigorously workable concepts and laws of science, but also at certain crucial instances becomes an indispensable constituent of their creation and emergence as well. A striking case of the manner in which mathematics may shape physics has occured in the theory of relativity. In the 1920s the quantum theory could move as rapidly as it did only because certain prefabricated parts from the theory of matrices and differential equations were lying about some what idly.

8. PHYSICS :- Formerly called natural philosophy, physics is concerned with those aspects of nature which can be understood in a fundamental way in terms of elementary principles and laws. In the course of time, various specialized sciences broke away from physics to form autonomous fields of investigation. In this process physics

retained its original aim of understanding the structure of the natural world and explaining natural phenomena.

Basic Parts :- The most basic parts of physics are mechanics and field theory. Mechanics is concerned with the motion of partieles or bodies under the action of given forces. The physics of fields is concerned with the origin, nature and properties of gravitational, electromagnetic, nuclear and other force fields. Taken together, mechanics and field theory constitute the most fundamental approach to an understanding of natural phenomena which science offers. The ultimate aim is to understand all natural phenomena in these terms

The older, or classical, division of physics were based on certain general classes of natural phenomena to which the methods of physics had been found particularly applicable. These consisted of classical mechanics with branches in celestial mechanics, hydrodynamics, and ballisties; heat and electromagnetism. These divisions are all still current, but many of them tend more and more to designate branches of applied physics or technology, and less and less inherent divisions in physics itself.

Branches :- The divisions or branches of modern physics are made in accordance with particular types of structure in nature with which each branch is concerned. Thus particle physics or high-energy physics is the most recent branch in this regard. The next branch in this classification is nuclear physics concerned with associations. of neutrons and protons framing the nuclei of atoms, there structure, properties and energy states, reaction between nuclei including scattering process and radio activity and related phenomena such as interactions of high-speed nuclear particles with matter. Atomic physics concerned with the properties and structure of atoms as determined by the electrons outsides the nuclens, the states of motions of these electrons including such topics as energy levels, momentum properties and magnetic moments, and the absorption and omission of radiation by atoms.

Continuing with this classification in ascending complexity there are molecules, solid -state physics, physics of gases and plasma physics. In this same classification could also be included, biophysics and mathematical physics. Except these, electricity, classical mechanics, electromagnetism, heat, low-temperature physics, optics, theoretical physics also come in ~~the~~ its branches.

9. STATISTICS :- The field of knowledge concerned with collecting, analyzing, and presenting data. Not only workers in the physical, biological, and social sciences, but also engineers, business managers, government officials, market analysts, and many others regularely use statistical methods, in their work. The methods range from simple counting to complex mathematical systems designed to extract the maximum amount of information from very extensive date.

In an important sence statistics may be regarded as a field of application of probability theory. The theory of probability is concerned with the properties of random variable and hence furnishes the basic of developing techniques for controlling them. Viewing statistics from another direction, it is the science of deriving information about populations by observing only samples of those populations. Population is any well-specified collection of elements - other branches of statistics are following :-

Distribution, population parameters, samples, Random sampling, Sampling techniques, Sampling distributions, Estimation, Tests of hypothesises, Design of experiments, Regression and correlation and Non parametric inference.

10. ZOOLOGY :- The science that deals with knowledge of animal life. Together with botany, the science of plants, it forms, biology, the science of living things. With the great growth of information about animals, zoology has been much sub divided, some major fields are anatomy, which deals with grass and microscopic structure; physiology, with living processes in animals; embryology, with development of new individuals; genetics, with heredity and variation; parsitology, with animals living in or on others; natural history, with life and behaviour in nature; ecology, with the relation of animals to their environments; evolution, with the origin and differentiation of animal life; and taxonomy, with the classification of animals.

II.2 SCIENTIFIC METHODS :-

The methods employed in the various sciences are determined both by general nature of the subject matter. A pre-requisite to nearly every science is a suitable method of description of its subject matter. The language of such description must be capable of reproducing or recalling the subject matter with prescision and uniqueness. If the description is of on object, which it should be possible to reproduce and reconstruct from the descri-

ption or given an object, it must be possible to check whether it does or does not satisfy the corresponding description.

Classification : To accompany conciseness in description, some method of systematising or classifying the material to be described is usually adopted. Without such methods of classifying, precise description in a subject dealing with material as complicated as that in any of the biological sciences, for example, would be of an inordinate length resulting from treating each individual example as a class in itself. The economy of description that results from the classification of plants into species on the basis of particular features, for example, is obvious. Perhaps classification or some other method of systematization is to be considered the most primitive, ubiquitous, and necessary of the methods of science.

Repetition : One of the most potent methods of checking of correctness or truth is repetition. It is a matter of experience that there are objects and situations which repeat. It is part of the task of a science to formulate the conditions under which a situation repeats. If a scientist can establish the conditions necessary for

repetition, he can verify a previous description or observation by finding whether he now gets the same result as before. The possibility of repetition implies the possibility of control. Astromomy is regarded as a scientific activity, although may as yet has no control over the behaviour of heavenly bodies. Here the control is an idealized one through man's understanding of machines and physics. Neither need all the details of a situation be controlled.

Consensus : Another method of checking or confirming the correctness of an observation or report is agreement between different persons corresponds to the multiplicity of the repeated occurrence.

The matter of the consensus among different observers is so important that it is often incorporated in the difinition of science itself, which is sometimes partially defined as the consensus of qualified persons. It must be conceded that, when consensus is attainable, one may have a high degree of confidence that he has not made an error because of some personal idiosyncracy or inadvertence. No report of experimental observation or theoritical deduction is scientifically acceptable unless made in such terms that it can be repeated and confirmed

by any qualified individual.

Experiment : One of most potent tools of many of the sciences, both for the discovery of new facts and for more adequate understanding of existing facts, is the experiment. The experimenter artificially varies the conditions under which phenomena occurs. In this way he may greatly increase the frequency with which certain rare but significant conditions occurs in anature and thus compress into a practical length of time occurence which, in the natural course of events, might stretch over many generations as in the study of genetics by the biologists. The experimenter often proceeds by isolating the different factors supposed to control a phenomenon and studying the effect of varying these factors independently of each other. His conception of what the significant factors are, will often be determined by his theoritical under-standing, and often experimentation and heavy go hand in hand, on suggesting, modifying and determining the other.

Cause and effect : In modern scientific activity the theoretical analysis preceding the isolation of factors to be experimentally varied is predicated on the operation of the law of cause and effect. Without this law,

the development of the method of experiment would hardly have been possible. In spite of this, it does not appear justifiable to claim that science is committed to the assumption. That there is a law of casulty or perhaps more generally, to the assertion that there are regularities which control natural phenomna.

Measurement : In many of the sciences, quantitative measurement is employed. Fundamentally, measurements to description by the use of numbers, but not every use of numbers for the purposes of description is measurement. The numbers that measure as aspect of a situation or object are obtained by performing certain operations. The nature of the operations determines what is being measured. The operations by which the measuring numbers are obtained involve in the vast majority of cases the use of some sort of instrument, for example, in the case of length meterstick and in the case of weight a balance are used. The systematic design and use of instruments is one of the marks of well developed scientific method.

HISTORY OF SCIENCE

Until recently, the history of science was a story of success. The triumphs of science represented a cumulative process of increasing knowledge and a sequence of victories over ignorance and superstition; and from science flowed a stream of inventions for the improvement of human life. The recent realization of deep moral problems within science, of external forces and constraints on its development and of dangers in uncontrolled technological change has challenged historians to a critical reassessment of his earlier simple faith.

SCIENCE IN GREEK CIVILIZATION : The dawn of European science has traditionally been located among the philosophers of the Greek city-states on the coast and islands of the eastern Mediterranean, in the later 6th and 5th centuries BC. The two learned arts in which there was an approach to maturity by this time were, first, medicine, the practice of which was at least attempting to apply disciplined method in observation and inference, and second, geometry, which was accumulating a body of results about relations between particular constructed figures and was approaching the

problems of logical structure (in successive editions of Elements, precursors of Euclid) and of definition (as with the irrational ratios, as $\sqrt{2}$).

Plato, early 4th century BC, is the earliest philosopher whose writings are extent. He was a powerful propagandist for mathematics. In the Republic he argued that geometry prepares the mind for the discourse of dialectic about the real ideas, of which perceptible things are but images, and thence to wisdom and illumination. Aristotle, also in the 4th century BC, was one of the world's first, and greatest scholars. His interests ranged over the entire natural and human world, including ethics and metaphysics. Through accurate observations and disciplined theorizing, he created a biological science and a taxonomy much like those in use today.

Although this Hellenistic Age (roughly 323 to 30 BC) did not reach the heights of genius of the earlier one, it produced some great mathematicians (Euclid, Archimedes, and Appolonious) and astronomers (Hipparchus). Studies in medicine and physiology also advanced, and during this period, the origins of European alchemy were developed by Egyptian chemists attempting to rationalise chemical change by Aristotelian theories.

scholars of Syria, the early Arabic rulers of Baghdad in the 9th century had the bulk of the corpus of Greek science translated, and soon, after their own scholars advanced further, particularly in mathematics, astronomy, optics, chemistry, and medicines. The social base of science, however, was thin. Hence no single centre of scientific culture flourished for much more than a century, and, although materials were transmitted between them, the loss of continuity prevented a sustained development. The 12th century saw a heroic program of translation of works from Arabic to Latin, at first in astrology and magic, then in medicine, and finally in philosophy and science.

India :- The Indian civilization is about the oldest still alive, ad it achieved a high level of technology at an early stage. It does appear that Indian mathematics, with a highly developed system of numeration and reckoning, influenced Arabic algebra; it also provided the principal arabic numerals (i.e. the nine digits and a zero in a place value system).

CREATION OF EUROPEAN SCIENCE : The "science" of which histories are written is European. Although other civilization made essential contributions toward it and though now all nations participate in research, natural

science is a distinctive creation of Europe and its cultural colonies. Its roots in thought and society are the same as those of European technology and of its acquisitive spirit; hence science is an important part of the process that achieved domination for this small and, until recently, barbarous comer of the world. The creation of European science has two phases, one of technical development in the 16th century, the other of philosophical revolution in the 17th century. Out of these came the idea of science that is current to this day.

SCIENCE IN 16TH CENTURY : (REBIRTH OF SCIENCE IN THE RENAISSANCE :

The roots of the rebirth of science can be located in three main centres. The first and most famous root is something that can be called the discovery of man and nature. At the same time the mountainous region in Southern Germany, with end points at Nuremberg and Cracow, enjoyed a rapid growth in mining, metallurgy, and trade. Practical mathematics and the theory and practice of metal working were developed there. The Rhine linked this region with the prosperous weaving centres of Flanders. During the century, the Spanish and Portuguese begam their explorations.

The new philosophy, however, was not a prerequisite for successful science. Around the turn of the century, and later, there appeared great works of science containing particular discoveries that are still accepted as facts to this day, but the scientists who achieved them were still working within the world view that was shortly to be rejected by the new philosophy. Thus William Gilbert (1600) in England explained the compass needle in terms of the earth's being a gaint, veryweak magnet. In Prague, Johannes Kepler shortly afterward (1609) discovered the true orbits of the planets as elipses around the sun, and he never ceased his search for the harmonies of the cosmos. Later (1628), William Harvey in England established the circulation of the blood.

SCIENCE IN 17TH CENTURY :

REVOLUTION IN NATURAL PHILOSOPHY :- In the 17th century, there occured a radical rescasting of the objects, methods, and functions of natural knowledge. The prophets of this 17th century revolution were Francis Bacon in England, born 1561, Rene Descartes in France, born 1596, and Galileo Galilei in Italy, born 1564. Each of them was committed to a great mission, over and above particular facts and theories, and each

in his way tasted tragic defeat. Bacon's contribution to science was nil, but he provided an inspiring ideal and also shrewed judgements on the social activity of science. Descartes created a new metaphysics, a radically improved algebra and geomerty, and some viable results in physics (explanation of the rainbow). Galieo's vast labours for Copernicus had only an indirect effect, and that a mixed one; but by his mechanics he brought relative clarity to the science of motion and laid firm foundations for future work. In spite of their differences instyle and contribution, these three prophets shared a common commitment about the natural world and its study. Nature itself was seen by the them as devoid of spiritual and human properties.

The career of Sir Isaac Newton at the end of the 17th century illustrates the complexities that persisted even when the revolution had been successful. One of the greatest scientists and mathematicians of all time, he brought the heavens and Earth together in one impersonal law of attraction, the law of gravity, and also brought a new rigour to methods of quantitative experimental investigation.

Indeed, by the end of the 17th century, interest

in natural philosophy had edded so much that the Royal Society was nearly defunct. It was revived by Newton himself from 1704, to become a club for gentlemen who enjoyed hearing about experiments and collections. The image of Newton dominated science in the 18th century. A handful of great mathematicians (the Bernoulli family and Leonhard Euler, all of Switzerland) developed the differential and integral calculus invented by the German philosopher Gottfried Leibniz to the form in which it is now taught. A successful theory of static electricity was established by the American scientist and diplomat Benjamin Franklin.

SCIENCE IN 18TH CENTURY : Toward the end of the 18th century, there began an industrial revolution that transformed Europe from an agrarian to an urban society : at the end of the century occurred the French Revolution, in which modern political ideas were first realized in practice. At the beginning of this period, science was a very small-scale activity, mainly pursued by gentlemen of means or by trained professionals, such as physicians and engineers, in their spare time.

SCIENCE DURING THE INDUSTRIAL REVOLUTION : In the gradual but deep transformation of European industry, the direct contribution of science was at first small. The contribu-

tion of the Industrial Revolution to science was at first similarly indirect. In the industrializing regions of Britain (Lowlands Scotland, the Midlands and Cornwall) there developed an audience for scientific results. Philosopher-manufacturers such as Josiah Wedgwood, the potter and social reformer, combined with physicians to pursue research, to form local societies,and to patronize scientists. By the end of the century, not only free-lance lecturing but also the publication of journals for the specialist became economically feasible.

THE ORGANIZATION OF SCIENCE IN THE FRENCH REVOLUTION :

Natural science was deeply involved in the French Revolution. Form the Enlightenment the revolutionaries inheriteda faith in science and its methods that permitted the greates scientists to devote themselves to the organisation of war industry for the defense of the republic in its hour of need. The dominant style of this Revolutionary science was mathematical. In applications, its method was rationalization, one lasting product of which is the matric system. At the height of the Revolution there emerged a countermovement in science that condemned the mathematical approach as sterile and elitist. The ideological

struggle over the nature of chemistry was probably a factor in the execution of Laviosier (1794) during the Terror, but with the collapse and destruction in late 1794 of the Jacobins.

SCIENCE IN THE 19TH CENTURY : In retrospect, the 19th century appears as a golden age. Science expanded successfully into new fields of inquiry, including a combination of mathematics and experiment in physics, the application of theory of experiment in chemistry, and controlled experimentation in biology. National and international meetings, for both general science and specialists, became common by the end of the century.

DIFFERENCE IN STYLES OF RESEARCH : There were still striking differences among the leading nations regarding the circumstances and styles of research. In Britian, there was a marked absence of institutions providing jobs for researches. In Germany, the natural sciences shared in the rise in size and prestige of the university system. There, research and teaching were joined, and genuine laboratory research training was established for the first time. German science rose in the half century from 1830 to a position of leadership in most fields. During this same period, French science declined from what had previously been its commanding position during

the Revolutionary and Napoleonic periods.

Around the end of the century, American scientists went to Germany in large numbers and on returning established strong traditions, but the attainmentment of qualitative leadership by the U.S. required the influx of refugee scholars from Nazi Germany in the 1930s.

PROGRESS IN PHYSICS : During the 19th century, each of the major branches of experimental science made such great progress that in retrospect its earlier state seemed to be rudimentary. Physics achieved that close union of precise experimentation with abstract mathematical theory that brought unprecedented depth of knowledge and power in application of that knowledge. Different fields were brought under control and then successively unified by the concept of energy. Thermodynamics united the sciences of heat and work and then enabled a theory of chemical change to develop. The roots of this lay in the work done by physicists in power engineering pioneered by Sadi Carnot of France and James Joule of England, in a variety of experimental fields pioneered by the German Herman Helmholtz, and in the speculative search for the single agency of physical change. Electricity and magnetism were united, first experimentally and then theretically by the Dane Hans

Christian Orsted and the Englishmen Mic-hael Faraday and Kelvin; and a fundamental constant in the theory of electromagetic measurement, determined by the German Wilhelm Weber, was observed to beequal to the astronomically determined velocity of light by the Englishman James Clerk Max-well. Thus, the general properties of matter were successively mastered and made coherent. Later physicists justly called the century the classical age.

PROGRESS IN CHEMISTRY : Chemistry built on the theoretical foundations of Lavoisier's nomenclature and Dalton's atomic theory and spent decades on the heroic task of classifying substances into elements and compounds. The decade from 1858 saw three victories. In Italy, Stanislao Cannizzaro solved the twin riddles of atomic weight and chemical composition by the synthesis of neglected earlier ideas (specifically Avogadro's hypothesis) and new experimental results and heuristic principles developed in teaching. At last the composition of water, as H_2O and not HO was known. Shortly afterward, Friedrich Kekule in Germany uncovered the true structure of organic compounds, with the alternate bonds of the benzene ring. Then Lothar Meyer in Germany and Dmitry Mendeleyev in Russia mastered the structure of the periodic table of the elements and could predict the

properties of unknown elements. Thereafter chemistry could move toward a closer unity with physics and an increasing power in industrial application.

PROGRESS IN BIOLOGY : In biology, the experimental approach was first successfully developed in physiology mainly by the school of Johannes Muller in Germany in a complex reaction with Naturphilosophie. Philosophical considerations similarly conditioned the enunciation of the cell theory by Theodor Schwann. These Germans were generally reductionist. The French, who tended to believe in the special character of vital forces, advanced the more synthetic aspects of physiology (Claude Bernard) and medicine (Louis Pasteur). Through the field sciences came perhaps the most important conceptual achievement of the century. In England, disinterested in super-natural explanations. and given insights by a political essay on population control by the political scientist Thomas Malthus, the naturalists Charles Darwin and Alfred Russell Wallance conceived of natural selection by the Victorian principle of survival of the fittest. The theme of this age was progress, and science received credit for much of the real progress.

EARLY 20TH CENTURY : The scientific achievements of the earlier 20th century are too immense even to be cataloged.

There is, however, a common pattern of advance. In each major field, progress was based on the successfull descriptive work of the 19th century. It went first to a finer analysis of constituents and their mechanisms and then to syntheses that straddled the inherited names of disciplines, producing vigorous hybrids such as biochemistry and biophysics. In physics, the classical theories of the main physical forces (heat, electricity, magnetism) had been unified at their foundations by thermodynamics; and the early part of the century saw the discovery of totally new effects (X-rays, radioactivity), the penetration into the structure of matter (atomic theory, isotopes); these required a recasting of the fundamental laws of physics and some of their metaphysical presuppositions (relativity, quantum theory). Chemical methods of analysis were necessary for much of this work in physics. Conversely, the new physical theories were sufficiently powerful to provide effective explanations for a wide variety of chemical phenomena. On this basis, the chemical industry could produce an enormous range of totally synthetic substances (fibres plastics). In the life sciences, chemical and physical methods brought discovery and explanation of subtle agencies (vitamins, hormones) and the reconstruction of the complex cycles of chemical transfor-

mations whereby matter lives. Medical science could build on bacteriology, and, through the discovery of specific and general drugs (first Salvarsan against syphilis, then sulfonamides and penicillin), it nearly eliminated both the classic epidemic diseases and also the cruel diseases of childhood.

II.4 History of the Departments of Sciences of Aligarh Muslim University

Sir Syed Ahmad Khan founded a tinny school during the mid ninteenth century which later developed into the well-known Mohammdan Anglo-Oriental College and the latter 1920 matured into a fullfledged University, the Aligarh Muslim University. Since the very inception of this University and in fact even earlier also, sincere efforts were made on one hand to end the educational backwardness of Indian Muslims and on the other hand to improve the prospects of their employability including self-employment by imparting professional and technical education. Many of the modern day professional courses were not heard of those days and one could think of Engineering and Medical. So, from the very start steps were taken by our predecessors to creat facilities for starting these courses. But the university neither had the power nor the resources to do this on its own. The approval of the Government of the day and the funds were absolutely essential before taking any step in this direction. The College of Engineering & Technology (now known as Zakir Husain College of Engineering and Technology) became a reality in 1944 in

pre-independence period itself, but the establishment of the Medical College (the Jawahar Lal Nehru Medical College) was possible only in 1962.

Department of Agriculture : The establishment of an Agricultural set-up has been eluding the university since long and it seemed to be the hardest nut to crack. Though feeble efforts were made to start undergraduate teaching in Agriculture as early as in 1946 but this did not last beyond a couple of years. It would not be out of place to mention here that the work done in this university in the fields of Plant Pathology, Nematology, Entomoilogy, Fisheries and Land Use and Water Management were reckoned to be of world-class standards which was evident from the fact that the scientist had gained recognition got meritorious awards and had occupied very senior positions on the national and international scenario. The status of research in the above named discipline can be judged from the fact that over 2000 research papers and more than 30 books of repute have been published. In 1984 starting research and teaching in agriculture at M.Sc. level in the following eight subjects : i) Plant pathology, ii) Entomology, iii) Horticulture, iv) Nematology, v) Microbiology,

vi) Soil Chemistry, vii) Fertilizer technology and viii) Water management, but only five courses namely Plant Pathology, Entomology, Nematology, Microbiology, and Land Use & Water Management were actually started . In 1989-91 three courses were also stopped because of the resources crunch and partly due to the lack of interest. These courses are Plant Pathology, Microbiology and Land Use and Water Management. Only Nematology and Entomology were allowed. ICAR played a major role in the establishment of the In situte of Agriculture in A.M.U.. Institute of Agriculture was started from 1993 and the teaching in the Institute started from this session with the whole hearted support of the teachers of several departments of the university. The post graduate courses on Plant Protection and Agricultural Economics & Business Management started from session 1993-94, but the course on Post-Harvest Engineering & Technology & Agricultural Microbiology were scheduled for the session 1994-95 and 1995-96 respectively. Teaching staff of Institute of Agriculture in 1995-96 were on the contact basis for one year. Prof. M.Shamim Jairajpuri appointed first Director of the Agricultural Institute from 1993 to 1996. First Ph.D. Theses was completed in 1991 by Mohd. Akhtar under the supervision

of M.M.Alam in the field of Nematology. Thrust areas of researches in the four diciplines of the Institute are as follows :-

1. Plant Protection ; i) Agricultural Entomology, ii) Agricultural Nematology, iii) Agricultural Plant Pathology

2. Agricultural Economics & Business Management :

i) Estimation of demand, production & cost functions of agro-based industrial products, business forecasting, food prices and food policy, megnitude of foreign investment in agricultural sector, ii) Farm risk premium for various crops and agricultural inputs. Technology, factor substitution and economics of scale in Indian agriculture.

3. Post-Harvest Engineering & Technology .

4. Agricultural Microbiology .

It has planned to design courses which have excellent job potential in the present context of economic liberalization in our country including self-employment generation possibilities. The emphasis will therefore be more on technological innovations with respect to rural development, augmentation of our livestock, fish

and milk productivity, waste utilization and recycling, wasteland development technologies and some other fast emerging and income generation areas like floriculture, horticulture, aquaculture, etc.

Department of Bio-Chemistry : In begining the studies under this branch were made with Deptt. of Chemistry. it was separated from Department of Chemistry in 1984 and became independent department under the Faculty of Life Sciences. Professor A. Majid Siddiqui was the main person in the department and played an important role in many developmental works in this department. At present the courses which are running efficiently are B.Sc.(Bio-Chemistry), and M.Sc. (Bio-Chemistry) under this Department. Researches are being done also in some very important fields in the Bio-Chemistry in this department. Presently Prof. M.Sleemuddin is the Chairman of the department whose contribution for development of the department is unforgetable. Under him there are three projects at present on Bio-sensor from Germany, on development of Bio-Technology and the third one with U.G.C. programmes. This department also enjoys the presence of Prof. S.M.Hadi and Dr. Noor Khan Yusufi who have got now world fame.

Major areas in which the researches are being carried out are— i)DNA- Damage and Repair, ii) DNA-Repair Enzymology, iii) Enzyme Immobilization, iv) Enzyme Purification and Charecterization, v) Biological Membranes, vi) Bacterial and phase Genetics, vii) Proleases and Prolease Inhibitors, viii) Mechanism of Cancer Etiology, ix) Lipids; Bio-Transformation Analysis and Characterisation.

Department of Botany : Initially botany was the part of department of Biology which was established in 1906. The separate department of botany was established in 1922. Plant pathology was introduced in 1945 and in 1954 embryology was also started. Later on Anatomy and Plant physiology were also started in 1957 and 1978 respectively.

About 50 students have been awarded with doctorate degrees and about 400 papers have been published in national and international journals and conferences were also held. The research activities were recognised with the award of Rafi Ahmad Qidwai Memorial award to Prof. Abrar Mustafa Khan. He was also elected as fellow of Indian National Science Academy. The department also runs South East Asia post graduate Nematology

course in collaboration with Govt. of Netherland and AIRI. The department is one of the centres for ICAR co-ordinated research projects on plant nematodes.

The origin and variation in the cambuim and phloem tissues have also been studied. Certain disciplines like Moleculer Biology and Plant Breeding are of much importance needing attention. The department has contributed much in the India's social and economical problems.

At present research scholars are engaged in research activities especially in the fields - i) Plant Pathology, ii) Plant Anatomy, iii) Plant Physiology, iv) Plant Embryology, v) Plant Taxomany and , vi) Cyte gauetids and Plant breading of Angiosperms.

Department of Chemistry : Just after the establishment of Mohammadan Anglo Oriental College, with the corporation of Department of Science (Physics and Chemistry), the college turned into A.M.U. in 1920. The separate Department of chemistry was started in 1912 with post graduate degrees being awarded in Inorganic, Organic, Physical and Bio-Chemistry. Later on another branch as Analytical Chemistry was also introduced in the

Department. The department of Chemistry in A.M.U. occupies a distinguished place in India and is famous for its distinguished activities around the world. The department has produced many prominent scholars, who later on did some exceptional works in carrying out research and developmental activeties in different branches of the subject.

Major areas at present in which the researches are in progress are - i) Physical Chemistry in which the main topics for research work are Solid state chemistry, Liquid membrance, Reaction mechanism, Molten salts and glass and Electro Chemistry. ii) Inorganic Chemistry under which important topics are Coordination chemistry, Synthetic and Structural Inorganic Chemistry and chemistry of tin germanium and boron. iii) Analytical Chemistry covering the topics development analytical methods in studies of environmental pollution analysis and characterization and applications. iv) Organic Chemistry under this comes the topics synthesis of oleochemicals and fatty pesticides and indigenous medicinal plants are being researched.

Department of Geography : The department of geography at A.M.U. was established 1924 to give under graduate

courses in geography, the department produced its first batch of post graduate students in 1931. Ever since its inception the department has pioneered the cause of geography in the subcontinent and itwould be no exaggeration to say that the place geography has achieved in this part of the world is in a large measure due to the efforts of this department. Aligarh has been said as the 'Mecca' of the Indian geography by late Prof. Sir L.Dudley Stamp.

At present the researches are being carried out in agricultural geography, authropo-geography, political geography, population geography, urban geography, human geography and physical geography.

Geographical Society and Publications : The A.M.U. geographical society was found on 27th March, 1925, under the presidentship of Major E.W.Dann, the then Head of the Department. The society publishes a bi-annual journal, the Geographer, and Organises geographical symposia and excursions.

Several important papers and books were published by Major E.W. Dann, Dr. Syed M. Tahir Rizvi, Dr. Syed Muzzaffar Ali, Dr. Mohammad Shafi, Dr.Mohammad Anes, Dr. Mehdi Raza, Dr. Niaz Ahmad Siddiqi and others

The department diversified its research activities for regular doctoral courses in 1938 and avoided its first Ph.D. in geography in 1941. In the same period the specialisation in economic and agritultural geography were introduced.

Department of Geology : Geology was introduced as a subject upto graduate level in the department of geography in 1946. Later on in July 1955, a separate department was stated with Prof. P.N. Ganju as Head of Department. In 1953, the first batch of M.Sc. students came out.

Although researches were started in Coal Petrology researches in Economic Geology and Sedimentary Petrology were introduced later on. Several Veteran Geo-Scientists of the world visited the department. Prof S.W.Carey and S.Hills are some of the important scientists who grace the occasion by their presence. Presently researches in Hydrogeology, Geo-chemistry and Environmental chemistry are going on. About 50 researchers are working for their doctoral and other post doctoral work. About 50 persons have been awarded with the Ph.D. Degrees and the first Ph.D. was awarded in 1956.

Department of Mathematics : The subject is being taught since 1975 when the M.A.O. College was started. The separate department of mathematics was started in 1920 by Dr. Sir Ziauddin Ahmad. During 1931-46 when Prof. Andre Wail of France joined the department took interest in developing the studies in differential geometry, differential equations and theory of functions of the complex variables. Since 1947 postgraduate courses were bifurcated into pure and applied mathematics and practical work in statistics. Later on statistics was separated from this department in Feb. 1975. In 1965, the emphasis to modern mathematics was given. Specialisation in modern Alegebra was developed during 1966-72. Since 1971, the department is also publishing a journal called Aligarh Bulletin of Mathematics. Diploma in Computational Mathematics was introduce in 1990.

There are at present active groups of teaching and research students who are working on topics in Algebra, functional analysis, special functions, relativity, geometry, applied mathematics and gravitational waves. The first Ph.D. was awarded in 1945. The Chairman of the department is Prof. M.A.Quadri.

Department of Physics : The combined department of physics & chemistry under Prof. Dunicliff were first separated in 1912. The subject of physics was introduced in 1908 at the degree level and a Veteran physicist and a student of J.J.Thomson at Cambridge Dr. Wali Mohammad was appointed as the first Professor. Around 1931, the first post graduate student was able to do his M.Sc. It was Sir Ross Masood, the then Vice Chancellor who placed the department firmly in the field of research. Prof. S. Samuel and Dr. R.K.Asundi worked in the field of spectro-scopy and obtained some of the first equipments available anywhere in India. In 1934, the first Ph.D. was awarded and a number of papers were published. The department was recognised as one the main centres for researches in the field of spectroscopy in India. In about 1940, Prof. R.M.Chaudhry started research in conduction of electricity through gases. At the same time Shri C.V.Raman, Prof. K.S.Krishnan and Prof. M.N. Shaha were associated with the Department. Researches in the field of nuclear and cosmic ray physics were started in 1949. The research and developmental activities in the field of electronic are being carried out since 1950.

Presently, researches are being done in theoritical

Nuclear Physics, Experimental NuclearPhysics, High Energy Physics, Cosmic Rays, Astro Physics - History of Science, Atomic Spectoscopy, Molecular Spectrophysics, Speech communication (Electronics), Solidstate Physics, Magneto-hydro Dynamics (MHD) and High Temp. Super conditionality. The Chairman of the Department at present is Prof. Z.H.Naqvi.

Department of Statistics : Statistics as a subject of study was introduced in the Department of Mathematics and Statistics of this university went back in early fifties when it was offered as oneo of the subject taught at graduate level. Full fledged graduate and post graduate courses in statistics were started in 1953 and 1955 respectively. In the year 1958 a post graduate course leading to M.Sc. in statistics was instituted and the first batch passed out in 1960. Credit for this achievement goes to Dr.A.R.Kohan, Prof. J.S.Rustogi, Prof. Hasib Rizvi, Dr. A. Salam Qureshy, Dr.(Late) Zahirul Islam and Prof. S.M. Ali. The Diploma Course in statistics was introduced in 1957. A separate dapartment of statistics was established with Prof. S.M. Ali as Head of the Deptt. Research activities were started in 1958 and the first Ph.D. was awarded in 1963. A Research Journal entitled

'The Aligarh Journal of Statistics' was introduced to the academic community the first issue of which was released in 1981. During the period 1980 - 1985 it was a major academic event that an Institution of Master's Degree in operation research was established and now it registers candidates for the Ph.D. Degree in operations research.

At present in statistics researches are being done in the field of statistical inference, information theory, stochastic processes and sampling theory. In operational research the areas in which research activities are going on are mathematical programming and Queueing theory. The Chairman of this Deptt. at present is Prof. S.M. Zubair.

Department of Zoology : The first batch of students was admitted for B.Sc. Degree for Biology in 1922, with Zoology and Botany as two separate units, After the inception of the University, post graduate courses in Zoology was started by Prof. M.Babar Mirza. The first subject of specialisation was Entemology, and Helmiutology was also introduced later on.

The department was the distinction to award D.Sc. to Prof. Babar Mirza, Prof. Qadri, Prof. Bashir and

Prof. Alam who earned a place for the department on the world [illegible] of Zoological laborateries. Another subject of specialisation Inchthylogy was also introduced in 1956.

At present the department offers specialisation in i) Entomology in which researches are being done on the topics as Taxonomy, Physiology and Ecology insects; management of insect pests of agriculture, & insects mycetomes. ii) Agricultural Nematology covering the areas for research activities in behaviour and biological control of nematode pests of agriculture & taxonomy, iii) Genetics in which the main topics for research are formal genetics and human and population genetics. Another areas for specialisation which provides several topics for research activities are ecology, Ichtyology & Parasitology. Presently the department is running under the chairmanship of Prof. Jamil Ahmad Khan.

PART - TWO
BIBLIOGRAPHY

AGRICULTURE, BLACKGRAM, ROOT-COLONIZATION, ROOT-NODULATION by VAMFUNGI effect of AIR POLLUTION.

1. Kulshrestha, Madhu. Impact of air pollution on root colonization by vamfungi and root nodulation on black gram. Deptt. of Agriculture. 1995. 184 l. ill. References : 135-69 l. Supervisor; M. Wajid Khan.

Effects of two gaseous air pollutants (SO_2 and O_3) and one particulate air pollutant (fly ash) on plant growth and yield parameters, leaf cholorophyll, seed protein, root colonization and spore production by a VAM fungus, (Glomus caledonicum), root nodulation by Rhizobium. sp., phosphorous and nitrogen contents of black gram plants were determined under artificial treatment conditions.

-------, LEGUMES, ROOTKNOT NEMAGODES influenced by PARASITES, FUNGI effecte of AIR POLLUTION.

2. Hosseini Negad, Syed Abbas. studies on interaction of root-knot nematodes and root-infecting fungi on air pollution stressed leguminous crops. Deptt. of Agriculture. 1994. 159 l. References: 118- 40 l. Supervisor : M. Wajid Khan.

Root-knot nematodes are sedentary obligate

endorasites and they induce certain structural physiological and biochemical changes in the host plant. The present study shows, maximum suppression in plant growth of chick-pea cultivars was observed when the fungus plus nematode inoculated plants were exposed to SO_2. Chick-pea plants exhibited more suppression as compared to plant exposed to each of the pathogens individually or in combination i.e. nematode plus fungus, nematode plus SO_2 and fungus plus SO_2 .

-------, PATHOLOGY, PARASITOLOGY, NEMATOLOGY, NEMATODES, TAXONOMY and MORPHOLOGY.

3. Fazal Rahman, P. Some studies on the morphology and taxonomy of plant parasitic nematodes of India. Deptt. of Agriculture 1993. VII, 193 l. ill. References : 176 - 93 l. Supervisor : Irfan Ahmad.

The phytohagous nematodes of suborder Tylenchina have been studied. A large number of species of plant parasitic nematodes belonging to orders Tylenchida and Dorylaimida were collected. The description of Barchydorous Kazirangii, Trichotylenchus astriatoides and redescription of Merlinius macrodens with SEM elucidations have appended.

------, -----, -----, -----, ROOT KNOT NEMATODES, MANAGEMENT effect of ORGANIC SOIL.

4. Mohammad Akhtar . Studies on the management of plant-parasitic nematodes with organic soil amendments. Deptt. of Agriculture. 1991. ii, 195 l. ill. References : 174 - 95 l. Supervisor : M. Mashkoor Alam.

Root-knot nematodes being most serious damaging pests particularly to the members of Solananceae, Cucurbitaceae, etc. The crop losses due to plant-parasitic nematodes thought to be about 5%. The presence of multiple pathogens makes diognosis confusing and frequently resulting in under assesment of the damage caused by the nematodes. There are two broad means for the management of nematodes : chemical and non-chemical. The present thesis embodies three broad aspects related to nematode control.

BIO-CHEMISTRY, ANTIGENS, PARASITES, HOOKWORM.

5. Shalini Mohan. Characterisation of Antigens of hookworm parasites. Deptt. of Biochemistry. 1990. iii, 125 l. ill. Bibliography : 115 - 25 l. Supervisors: A.M.Siddiqui and Nuzhat A. Kaushal.

The characterisation of somatic as well as excretory-secretory antigens of Ancylostoma ceylanicum - a human hookworm, which has been used for chemotherapentic screening of potential anthelmintics. The antigens from adults and infective larval stages of A. ceylanicum were also analysed in order to identify the common/cross-reactive and stage/parasite analysed in order to identify the common/cross-reactive and stage/parasite specific antigens of A.ceylanicum.

-------, BLOOD, PLASMA, THIOL, PROTEINS, ISOLATION & CHARACTERIZATION.

6. Gupta, Rekha Das. Isolation and characterization of human plasma thiol proteinase inhibitors. Deptt. of Biochemistry. 1993. xiv, 122 l. ill. References : 113 -22 l. Supervisor : Bilquees Bano.

Characterizes the two additional multimolecular forms and then to compares the properties of these inhibitors with Ist inhibitor. These three inhibitors

were characterized on the basis of several physico-chemical properties. Thiol proteinase inhibitory activity at different concentrations of papain when determined gave papain/TPI stoichiometry of 1 : 1 for TIP-1, 1.5:1 for TPI-3 and 3.2:1 for TPI-4. Structural relationship between the three inhibitors and also including TPI-2 was examined by immunodiffusion test with antibody against TPI-1, gave precipitin lines which fused without spur formation suggested similar antigenic structure.

------, ------, RBC, MEMBRANE, CALMODULIN, PROTEINS.

7. Zaidi, Asma. Studies on calmodulin and some membrane proteins of goat crythrocyte. Deptt. of Biochemistry. 1991. iv, 183 l. ill. Bibliography : 162 - 82 l. Supervisor : M. Saleemuddin.

Investigates the nature of calmodulin and some properties of membranes of goat erythrocytes that are compatible with the ability of these cells to survive and function normally inspite of their deficiency in calcium-medicated processes. No ATP- stimulated proteolysis of the membrane or cytosolic proteins could be observed even after long incubations. Protease activity in response to Ca, Mn, Zn and Co was also not observed either in the membrane or the cytosol.

-----, -----, -----, ------ effect of PHENYLHYDROZINE.

8. Afshan Naheed. Studies on theeffect of phenylhydrazine on red blood cell membrane. Deptt. of Biochemistry. 1991. V, 120 l. ill. Bibliography : 105 - 18 l. Supervisor : M. Saleemuddin.

Compares the effects of phenylhy drazine on intact erythrocytes and hemoglobin-free crythrocyte ghosts. The effects on lipid peroxidation, membrane sulfhydryls and polypeptide are investigated. Hemoglobin may contribute significantly to the effects produced by phenylhydrazine in the intact crythrocytes, comparable effects may be induced by the drug in hemoglobin-freeghost presumably due to the presence of traces of bound metal ions.

-------, -------, SERUM, ALPHA-2, MACROGLOBULIN, ENZYMES.

9. Mana Mirza. Studies on human serum alpha-2-macroglobulin. Deptt. of Bio chemistry. 1993. iv, 102. l. ill. Bibliography : 93 - 102. Supervisor :M.Saleemuddin.

Antigenecity of alpha-2 M entrapped enzyme is masked and is rapidly internalized by receptor bearing cells. Human alpha-2 M was purified from outdated blood in a three step procedure. The alpha-2 M enterapped invertase failed to give precipitin line on immuno-diffusion suggesting that

antigenic sites of the enzymes are masked, presumably by physical entrapment.

-----, BREAST TISSUE, PEPTIDE HORMONE, IMMUNOCYTOCHEMICAL

10. Tandon, Sarita. Immunocytochemical localisation and Biochemistry estimation of peptide hormone binding capacity of breast tissue. Deptt. of Biochemistry. 1991. 148 l. ill. Bibliography : 118 -48 l. Supervisor : Masood Ahmad.

Prolactin binding sites were present in greater proportion in prior post menopausal breast cancer patients. The presence of prolactin binding sites in malignant tumours of breast would thus indicate that prolacting might be significant in the support of breast cancer growth in vivo. This finding may also suggest a role of prolactin in the etiology of breast cancer through the indication of aporcine change.

------, CICER ARIETINUM, HYPOLIPIDEMIC, PRINCIPLE effect on RATS.

11. Siddiqui, Mohd. Tauseef. Hypolipidemic principle(s) of cicer ariotinum : Biochanin - A and Formonetin. Deptt. of Biochemistry. 1978. 101 l. References : 92 - 100 l. Supervisor : Abdul Majid Siddiqui.

Two isoflavones of bengal gram - biochenin - A

and formononetin - are among the active hypolipidemic principles of bengal gram. To substantiate the hypolipidemic effects of these two isoflavones in the hope that an effective drug therapy could evolve in prevention of cardiovascular disease related to hyperlipidemic. Biochanin -A or formononetin, at a dose of 50 mg/Kg./day, did not effect any of the lipid parameters of serum, aorta, and liver when administered to normolipemic rats for two weeks.

--------, DIETRY, MUTAGENS, DNA, INTERACTION.

12. Fabeha Fazal. Mechanism of the interation of some dietry mutagens with DNA. Deptt. of Biochemistry. 1991. v, 135 l. ill. Bibliography; 125-35 l. Supervisor : S.M.Hadi.

Experiments on the generation of oxygen radicals and DNA degradation activity of MG (Methylglyoxal) and two structurally related flavonoids, quercetin and morin. The reaction of MG with double-stranded DNA leads to the formation of strand breaks and interstand cross-links depending upon reaction conditions. Using the reduction of nitrobluetetrazolium it was shown that MG generates $\dot{O}_2^-$ in visible light. Quercetin reduces oxygen to produce $\dot{O}_2^-$ and the reaction is greatly accelerated in visible light and under alkaline conditions. Cu (II) mediated

oxidation of quercetin and morin leads to the formation of oxidized product(s) via different charge transfer intermediates.

------, E.COLI, DIETARY FURANS, MUTAGENS.

13. Qasim Ali Khan. Mechanism of mutagenic action of dietary furans. Deptt. of Biochemistry. 1993. iii, 75 l. ill. References : 71 - 75. l. Supervisor : S.M.Hadi.

The mutagenic effect of furfural induced lisions in the double stranded plasmids pBR 322 and Blue Script (pBS SK+/-). Plasmid DNA was treated with furfural before transformation in E. Coli. There was progressive decrease in the transformation capacity of the plasmid both as a function of furan concentration and time of reaction. Experiments on the conservation of Eco RI cleavage site in mutent plasmids indicated that repair of furfural damaged DNA takes place on propagation in host cells. The reaction of furans with DNA reduces its biological activity as assayed by bacteriophage lambda inactivation.

-----, -----, GENECLONGING , STREPTOMYCES, FLAVOGRISEUS, XYLANASE.

14. Simi Ali. Clonging of structural genes coding for Endo-D-xylanase from streptomyces flavogriseus in Escherichia coli. Deptt. of Biochemistry. 1990. vi, 103 l. ill. Bibliography : 92 - 103 l. Supervisors: Masood Ahmad and Ranjana Srivastava.

Anstrain of Streptomyces flavogriseus was characterised as a source for endo-D-xylanase. S.flavogriseus codes for three different xylanases. The gene coding for one of the xylanases corresponding to Mr.18000 in S. flavogrisens was isolated by direct shot gun cloning in a multicopy plasmid pUC 8 using E.coli as a host.

-------, ENTAMOEBA, HISTOLYTICA, HOSTINVASIVE.

15. Shailendra Kumar. Biochemical studies on entamoeba histolytica with special reference to its host invasive functions. Deptt. of Biochemistry. 1990. ii, 169 l. ill. Bibliography : 153 -69 l. Supervisors: A.M.Siddiqi and Prem Sagar.

To investigate biochemical differences in 'invasive' and 'non-invasive' Entamoeba histolytica strains and modification of such parameters by cultivation of amoeba in

cholesterol enriched medium, Salient properties of these biochemical/physiological functions including their sensitivity to specific activators/inhibitors and antiamoebic drugs were also investigated. Thiol groups may be involved in several important functions of this amoeba.

------, GENOTOXICITY, METALS, SEWAGE.

16. Abdul Malik. Studies on the genotoxicity of certain metals and their resistance in E.coli and psuedomonas Sp. from sewage water and soil. Deptt. of Biochemistry 1994. viii, 146 l. ill. Bibliography : 127 - 45 l. Supervisors : A.M.Siddiqi and Masood Ahmad.

Heavy metal uptake and concentration in food chain, especially those terminating in human beings largely due to several instances of unexpected human intoxication, as have occured with mercury, cadmium and lead. This work on the genotoxicity of sewage and soil samples collected from the industrial estate of Aligarh was carried out to gain insight on the hazardous effect of heavy metal pollution.

------, GLYCOENZYME, IMMOBILIZATION and STABILIZATION, POLYCLONAL ANTIBODIES.

17. Jafri, Farhadiba. Glycoenzymes immobilization and stabilization using polyclonal antibodies. Deptt. of Biochemistry. 1994. iv, 120 l. ill. References : 110 - 20 l. Supervisor : M.Saleemuddin.

Antienzyme antibodies have remarkable potential in immobilization and stabilization of enzymes. A strategy for the immobilization and possible stablization of glycoenzymes with polyclonal antibodies using a highly glycosylated enzyme the yeast invertase as a model was investigated. The antibody support appeared stable and exhibited no alteration in the binding capacity even after four elution and binding cycles.

------, -----, -----, PROPERTIES.

18. Sahid Husain. Stabilization and some other properties of immobilized glycoenzymes. Deptt. of Biochemistry 1994. vi, 131 l. References : 121 - 31 l. Supervisor: M.Saleemuddin.

The nature of association of the glycoenzymes with support on the properties of immobilized preparations has been made. For this purpose horse radish peroxidase (HRP),

invertase glucose oxidase and amyloglucosidase were variously immobilized and their properties investigated. The Sp-INV however, exhibited maximum recalcritrance to urea in-activation among the various immobilized invertase preparations.

-------, HMG, LIPID LOWERING, MECHANISM.

19. Shabana Iqrar. Studies on the mechanism of lipid lowering action of 3-hydroxy-3-methylglutaric acid (HMG). Deptt. of Biochemistry. 1989-90. vi, 161 l. ill. Bibliography :.150 - 61 l. Supervisor : A.M. Siddiqi.

To investigate the mechanism of lipid lowering action of HMG, the effects of i.p. administration of HMG were studied in normolipidemic, hyperlipidemic and diabetic rats. Rates were made hyperlipidemic by feeding them fat-rich cholesterol diet. Diabetes was experimentallyinduced in rats by alloxan treatment. These rats were treated with HMG. It belongs to the lipid lowering agents which are competitive inhibitors of HMG -CoA reductase. HMG was capable to contract the effects produced by diabetogenice agent alloxan.

-------, ISLETS of LANGERHANS, INSULIN effect of PLANTS.

20. Faiyaz Ahmad. Factors influencing release of insulin from the islets of langerhans with special reference to hypoglycemic activity in certain plant material. Deptt. of Biochemistry. 1990. ii, 202 l. ill. Bibliography : 160 -202 l. Supervisor : M. Saleemuddin.

(-) epicatechin was tested for its insulin like effects on target tissues in vitro. Nature of the binding site of (-) epicatechin on target cells have been studied by competitive binding with ^{125}I-insulin. The effect of age on the islets isolated from different age group of rats in response to certain insulin secretagogues. The conversion of proinsulin to insulin and cathepsin Bactivity is islets of langerhans have also been carried out. Coleonol, a diterpenoid, isolated from Coleus forskohlii was studied for its effect on blood glucose, serum free fatty acid level as well as on liver glucose 6-6phosphatase activity and glycogen level after oral feeding.

------, MACROMOLECULES, CARCINOGENS, INTERACTION.

21. Azmee, Arshad R. Studies on the interaction of chemical carcinogens with macromolicules (interaction of methylglyoxal and quercetin with DNA.). Deptt.of Biochemistry 1988. iv, 104 l. ill. Bibliography : 95 - 104 l. Supervisor : S.M.Hadi.

In vitro studies on the interaction of two dietary mutagens, namely methylglyoxal and quercetin have been carried out. The techniques used are S_1 nuclease hydrasis, alkaline unwidding of DNA, degration of supercoiled plasmid pBR322 DNA and absorption spectral procedures. The oxidation of the complexed Cu(I) possibly results in the reduction of oxygen to oxygen free radicals which induce DNA breaks.

-----,------, CARRIER, LIPOSOME effect on ENZYMES.

22. Sofia Mumtaz. Liposome as a carrier of macromolecules. (Enhanced intracellular stability of enzymes : an approach to enzyme replacement therapy). Deptt. of Biochemistry. 1994. 85 l. ill. Bibliography : 75 -85 l. Supervisor : A.M.Siddiqi.

Tested the effect of modification of enzymes with PEG and dextran on their intracellular and intralysosomal

stability. The efficacy of liposomally delivered enzyme conjugate in degrading the stored materials in a model storage condition in mice and in preventing any further accumulation of the substrate has also been studied. Liposomes were used for delivery of the native and the modified enzyme to the liver at similar rates. This would improve their therapeutic potential for the treatment of lysosomal enzyme deficiency disorders.

---------, -------, PHOTODYNAMIC effect of RIBOFLAVIN.

23. Jazzar, Mohannad Mohd. Photodynamic modification of macromolecules catalysed by ribaflavin in presence of Cu (II). Deptt. of Biochemistry. 1995. vi, 123 l. ill. Bibliography : 108 - 23 l. Supervisor : I. Naseem.

The effect of photoilluminated riboflavin and Cu(II) on protiens, and the genotoxic effects of photoilluminated riboflavin in the presence of Cu(II). Reaction between uricabid and free radicals generates urate radical which has been shown to have a damaging effect on macromolecules. Ames testingshave suggested that probably a tramshift mutation was caused by ribolavin -Cu(II) mediated reaction. Results obtained with various scavengers

of active oxygen species strongly suggest that singlet or triplet oxygen is predominantly responsible for the damage.

-------, MUTAGENS, DIETARY FLAVONOIDS, DNA.

24. Mohammad Said Ahmad. Mode of action of DNA reactive mutagens (Mode of action of dietary flavonoids). Deptt. of Biochemistry. 1992. v, 133 l. ill. Bibliography : 117 - 33 l. Supervisor : S.M.Hadi.

Activities of several flavonoids and the related nonflavonoid compound epicatechin were compared with respect to Cu(II)$^{-}$ induced strand scission of DNA by using two different assays. Experiments on the rate of DNA degradation by various flavonoids using calf thymus and plasmid DNA. Foot printing experiments are given that show that flavonoids do not possess any site specificity of binding to DNA. The experiments suggest that the flavonoid Cu (II) system can be used as a preferential foot printing reagent due to the uniform cutting pattern of DNA internucleotide linkages.

------, PLANTS, CHLOROPLAST, SULFURDIOXIDE effect of POLLUTION.

25. Akbar Masood. Effect of sulfurdioxide on structure and function of chloroplast. Deptt. of Biochemistry. 1986. 132 l. Bibliography : 121 -32. Supervisor : M.V.Beg.

The effect of SO_2 on the structure and function of chloroplst. The obvious reason is the ubiquitous presence of SO_2 in the polluted air around coal based industries and the possibility of chloroplast being one of the main targets of SO_2 toxicity. The effect of ag. SO_2 on the electron transport system in vitro is different from the effect observed in vivo. When chloroplasts were incubated with ag. SO_2. The swelling of chloroplasts has been correlated with inhibition in Hill reaction.

--------, PARASITES, MALARIA, REDCELLS, IMMUNOCHEMICAL.

26. Kalbe Jawed. Immunochemical studies on primate malaria parasites. Deptt. of Biochemistry. 1994. iv, 108 l. ill. Bibliography : 87 -109 l. Supervisor : M.Saleemuddin.

The immunochemical studies on asexual blood stages of primate malaria parasites and deals with immunogenicity and evaluation of protective potential of schizont infected

crythrocytes of P.knowlesi as well as identification of common or cross-reactive antigens between P. knowlesi and P. falciparum and may further be explored to isolate and purify the target antigens of P.knowlesi schizont infected crythrocytes and testing their potential of protective immunity in monkey model and efficacy in immunodiagnosis of human maleria.

-----, -----, -----, -----, MEMBRANE, PROTEINS.

27. Anser Azim, Chaudhary. Malarial paracite induced structural alterations in membrane proteins of the infected redcells. Deptt. of Biochemistry. 1991. iii, 160 l. ill. Bibliography : 132 -60 l. Supervisors : C.M.Gupta and Masood Ahmad.

The malarial parasite produces distinct structural and functional changes in the host crythrocyte membrane. For this purpose, synchronous infections of P.knowlesi were maintained in rhesus monkeys. The parasitized crythrocytes were isolated from thei infected blood using the standard procedures. The host crythrocyte band 3 protein exists mainly in oligomeric, tertrameric and elimeric forms and no change is seen in the ratio of these forms after infecting the cells with P.knowlesi.

-----, POLLUTANTS, ORGANIC, INORGANIC, MUTAGENS, RIVERINE.

28. Zehra Rehana. Studies on the mutaglnic activity of organic and inorganic pollutants in the riverine system of Northern India. Deptt. of Biochemistry. 1991. x, 187 l. Bibliography : 168 - 86 l. Supervisor : Masood Ahmad.

These factors have contributed to the pollution of our water resources. The net organic and inorganic pollution load in the test stretch of Ganga River between Narora and Kannauj. Some parameters were selected to achieve this goal. The HPLC analysis of water samples alongwith their mutagenicity testing by Ames and E.coli tester strains were used to indentify the pollutants particularly the pesticides. In vitro studies were also carried out to study the interaction of highly mutagenic samples with DNA.

-------, STEROIDS, DRUGS, GENOTOXICITY.

29. Qadri, Shafaat A. Genotoxic effect of certain steroidal drugs. Deptt. of Biochemistry. 1992. xii, 171 l. ill. Bibliography : 152 -70 l. Supervisor : A.M.Siddiqi.

The test steroids were synthesized and derivatized to widen their chemotherapentic use. Anticipates further developments in this area of pharmaceutical chemistry,

these steroids were selected for the genotoxicity testing in the light of available literature employing the Ames test as well as the E.coli and phage lambda testing systems. In vitro studies were also carried out to study the interaction of the highly mutagenic steriod I and VIII with DNA and to identify the lesions caused by them.

-------, STEROIDS, SYNTHETIC, CARCINOGENIC, MUTAGENIC.

30. Shabana Islam. Studies on the mutagenic and carcinegenic behaviour of certain synthetic steriods. Deptt. of Biochemistry 1991. ix, 154 l. ill. Bibliography : 143 - 53 l. Supervisor : Masood Ahmad.

Steriods have been reported to be mutagenic and careinogenic on the basis of short-term tests. These steroids were selected for the mutagenicity testing employing the Ames test as well as E.coli, lambda and Mud testing systems. In vitro studies were also carried out to study the interaction of a highly mutagenic steroid. I with DNA. An attempt was also made towards the structural requirement for the mutagenicity of steroids to elucidate the mechanism of steriod action.

BOTANY, CICER ARIETINUM L., NUTRITION, MINERAL effect on PHYSIOLOGY AND MORPHOLOGY

31. Mohammad Yahiya. Physiomorphological studies on cicer arietinum L. in relation to phosphorus nutrition. Deptt.of Botany. 1993. 196 l. ill. Bibliography : 173 - 96 l. Supervisor : Samiullah.

Tests the efficacy of four basal doses each of phosphorus and potassium and selects the best phosphorus x-potassium interaction. To investigate the dffectiveness of supplemental folier spray of three sources of phosphorous applied at one or two growth stages with three levels of basal phosphorus.

------, GENETICS, CHILLI, MUTAGENESIS, HYBRIDIZATION, POLYPLOIDY.

32. Imtiaz Ahmad Khan. Studies on mutagenesis, hybridization and induction of polyploidy in chilli (Capsicum spp.) Deptt. of Botany. 1983. 172 l. ill. Bibliography 128 -72 l. Supervisor : B.A.Siddiqui.

Investigation on various aspects of this crop is initiated for further improvement of its gentic architecture. To study the comprison of 10 cultivated varieties for 16 quantitative characters. To effect hybridization among

the varieties and carryout cytological investigation of hybrids. To compare F_1 hybrids with their parents and obtain information on the extent of heterosis. To make a comprison of F_1 and F_2 populations. To study the cytology and morphology of plants induced by chemical mutagens (EMS,DES) and colchicina. To isolate such mutants which are of use to plant breeders, cultivators and consumers.

------, MEDICINAL PLANTS, BARKDRUGS, ETHNO-PHARMACOGNOSY, MEDICINE, TRADITIONAL.

33. Abdul Atique. Studies on ethno-pharmacognosy of selected bark drugs of traditional system of medicine. Deptt. of Botany. 1985. 295 l. ill. Bibliography : 267-95 l. Supervisor : A.K.M.Ghose.

The present investigation has been carried out involving experimental aspects to evaluate the bark drugs of some reputed medicinal plant. The evolution of the drugs used in Indian system of medicine on the basis of their botanical, histochemical, phytochemical and physical characterstic, the survey and ethnobotanical and ethnopharmacological exploration of tribal pockets so as together the hidden treasure of knowledge about herbal drugs that are being used for various ailments from timesimmorial.

-----, MORPHOLOGY effect of GAMMARAYS.

34. Abidi, Syed Husain. Morphological studies of the effects of Gamma-rays on Linum Usitatissimum L.VAR. Neelum. Deptt. of Botany. 1981. 119 l. Bibliography: 102 - 19 l. Supervisor : A.K.M. Ghose.

Deals with germination, survival, general growth pattern, anatomy, floral morphology, oil content and fatty acid composition of Linum Usitatissimum L. var. neelum with reference to different acute does of gamma-rays in two consequent generation. No variation has been noted in the M_2 generation except the dimensional one of the secondary xylem components and this has been noted to undergo a considerable amount of recovery in M_2 generation.

------, MUSTARD,NUTRITION,MINERAL.

35. Aslam Parvez, M. Mineral nutrition of Mustared. Deptt. of Botany. 1979. 117 l. Bibliography i - xvii l. Supervisor : M.M.R.K.Afridi.

A detailed study with a view to select better yielding mustard varieties under local conditions and to establish their optimal basal fertilizer doses. The effect of five combinations of basal nitrogen and phosphorus on yield and yield attributing characters of two locally popular mustard varieties, Laha - 101 and Peeli Sarson. The basal

fertiliser requirements, under local conditions, of ten newly evolved high-yielding mustard varieties.

36. Feroz Mohammad. Mineral nutritional studies on yield and quality of Mustard. Deptt. of Botany. 1984. 127 l. References : i - xxiii l. Supervisor : Samiullah.

Studies the yield and quality characteristics of mustard with aims to select the better performing varieties of mustard out of ten high yielding genotypes recommended for cultivation in Uttar Pradesh and to Saket, the optimum dose of supplemental folair nitrogen with and without phosphorus and sulphur applied to varuna at two levels of basal nitrogen and phosphrus with a uniform dose of potassium.

------, PATHOLOGY, COWPEA, GROWTH effect of MELOIDOGYNE MEOGNETA, CHITWOOD, RHIZOCTONIA SOLANI.

37. Varshney, Vishnu Pal. Changes in plant growth, nematode population and nodule index as a result of Inoculation of cowpea (Vigna unguiculata (L.) Walp.) with Meloidogyne mcognita (Kofoid-8 white) Chitwood and Rhizoctonia Solani Kuhn. Deptt. of Botany. 1982. 108 l. References: 84 - 108 l. Supervisor : Abrar M. Khan.

To study the role of multipathogenic situation on

situation on cowpea, Vigna unguiculata (L). Walp. Screening of cowpea fodder cultivare against Rhizoctonia Solani Kuhn. Effect of moculation of cowpea seedings (raised from unbacterised seeds) with different seeds. Effect of concomitant inoculation of M. incognita and R. Solani on the time required for the completion of life-cycle of root-knot nematode, M. incognita on cowpea.

-------, TRITICALE, NUTRITION, MINERAL.

38. Arif Inam. Mineral nutrition of triticale. Deptt. of Botany. 1978. 125 l. References : i - xxii l. Supervisor : Samiullah.

Three of the more promising available varieties have been selected for five field trials planned according to randomised block block design as per details. To study the effect of I combinations of basal NPK on gexmination growth characteristics and leaf NPK content at three stages and on yield characteristics at harvest in three varieties of Triticade. To determine the most suitable date of sowing for Armadillo. PPV13, Armadillo T15 and Badger PM 119 under local conditions as indicated by their yielding ability. To compare the yield performance of two varieties each of Triticale and of wheat under different introgeregimes. To study the effect of different

levels of basal nitrogen and of spray of various doses of nitrogern and phosphorus, singly and in combination, on the yield characteristics of ArmadilloPV13. To sduty the effect of three doses of basal nitrogen and four doses of spray phosphorus on the yield characteristics of Armadillo PPV 13.

------, ------, ------, -------, PHYSIOMORPHOLOGY.

39. Zafar Abbas. Mineral nutrition of some new varieties of Triticals. Deptt. of Botany. 1980. 122 l. Reference: 108-122 l. Supervisor : Samiullah.

A British scientist crossed wheat with arye plant and the progency of this cross was sterile. The progency at present is known as tritacle. The author decides to test some of these from the point of view of (i) Physiomorphology, (ii) improvement of agro-techniques, and (iii) fertilizer economy. To study the physiomorphological performance of eight new triticale varieties under local conditions. To study the effect of six sowing dates on four varieties. To study the effect of seven seeding rates on three varieties. To study the effect three sources of spray phosphorus (alone or in combination with nitrogen) on triticale variety Badge PM118, keeping Sonalika wheat as check. These experiments were properly replicated and the data analysed statistically.

-----, TURNIP, PATHOLOGY, VIRUS, MOSAIC.

40. Abdul Samad. Studies on virus causing mosaic disease on Turnip (Brassicarapa L.). Deptt. of Botany, 1988. 178 l. ill. References : 155 - 78 l. Supervisor : Qamar A Naqvi.

An attempt has been made to identify the virus causing mosaic disease of turnip, B. rapa on the basis of symptomatology, host stics of virus particle, some physico-chemical properties, ultrastructural studies of infected tissues and serology. The present virus is a hither to unknown strain of PVX infecting turnip and is tentatively called PVX Aligarh strain.

CHEMISTRY, INORGANIC, HEAVY METAL, POLLUTION, GANGA WATER, NARORA, KANNAUJ.

41. Chaudhary, Rubina. Physico-chemical studies on heave metals in Ganga Water (Narora to Kannauj). Deptt. of Chemistry. 1992. vi, 305 l. References : 258 -271 l. Supervisor : Mohammad Ajmal.

Thesis deals with the monitoring of river Ganga from Narora to Kannauj) for a period of three years for their physico-chemical characterstics and heavy metal, water quality index and statistical analysis. The thesis is devided into five chapters. Chapter 1 represents an overview scenario of the river water pollution including pollution by heavy metals. Chapter 2 describes twenty two physical, chemical and bacteriological parameters along with ten heavy metals (Cu, Cd, Cr, Co,Fe, Zn,Pb,Mn, Ni and Hg.) were monitored during the study period. The heavy metals except mercury were determined by using Atomic Absorption Spectrophotometer (Model GBC-902). Mercury analysis was carried out by using Gold Vapour Atomic Absorption Spectophotometer. Chapter 3 deals with the physcio-chemical characteristices and heavy metals in Ganga river. Two methods have been used to discuss the physico-chemical composition of Ganga water, viz. (a) Hill-Piper Trilinear diagram and (b) water quality profiles. The people of this region of Ganga

river basin consuming river water in the river have intake of Hg, Pb, Zn as these are present in concentrations higher than the permissible limits. The mineral transport in the river is valid and some more monitoring stations are recommended to be introduced between the two existing stations to get the clear picture of water quality between the stations. The water quality in the study reach is slightly polluted down stream Fatehgarh for drinking and bathing purposes but suitable for fish culture.

------,-----, IONDIFFUSION, MEMBRANE, PHENOMENA.

42. Gupta, Veena. Membrane phenomena. Deptt.of Chemistry. 1980. 111 l. References : 19,78, 111 l. Supervisor : M.Nasim Beg.

In this thesis, the preparation of a number of membranes from various insoluble inorganic substances, both parchment supported and polystrane based, are described. The membranes have been utilized, as models, to examine the validity of various recently developed theories of membrane potential and biionic potential based on the principles of irreversible process. This thesis has been separated into two parts. Chapter I are described the preparation of polystyrene based stannic

arsenate and zinc phosphate membranes; and parchment supported cobalt and nickle chromate, cupric orthophosphate, mercuric orthovanadate and megnese sulphide membranes. Chapter II also describes the evaluation of diffusion rate of various 1:1, 2:1 electrolytes for the measurement of various parameters goveruing diffusion phenomena. Diffusion rates of cationshave been calculated using the Kettelberger's equation based on the simple laws of electrolysis. The ions are diffusing through the pores with the partial immobilization in the membrance phase.

------, ------, IONEXCHANGE & SYNTHESIS.

43. Asif Ali Khan. Synthesis and ion exchange properties of inorganic materials. Deptt. of Chemistry. 1978. 1. vii. 112. ill. Bibliography : 73,86,112. Supervisor : K.G. Varshney.

This thesis also covers three aspects of the inorganic ion exchangers. 1. Synthesis composition and ion exchange properties of new inorganic ion exchangers. 2. Chemical stability, thermogravimetric analysis and structure of the materials. III. Distribution studies and separations of metal ions, first chapter is a general introduction which gives an exhaustive review on the work

done in the field of inorganic ion exchangers. In the second chapter the synthesis, composition and ion exchange properties of two double salt namely Sn(IV) and Cr(III) arsenophosphates have been described. Chapter III of the thesis deals the most important aspect of inorganic ion exchangers i.e. chemical stability by using some procedures. Chapter IV gives an account of the distribution studies of different metal ion on these two inorganic ion exchangers. These studies were made using thenormal procedures for 16 metal ion.

-----, -----, MERCURY HALIDES, INTERACTION, COPPER, SILVER HALIDES, REACTIONS.

44. Saba Beg. Studies on the interaction of mixed mercury (II) Halides with copper (I) and Silver(I) Halides in solid state. Deptt. of Chemistry. 1991. 143 l. Reference : Supervisor : Afaq Ahmad.

This thesis deals with the study of the following five reactions in solid state. 1. Mercuric chlorobromide-copper (I) iodide. 2. Mercuric cholorobromide-silver (I) iodide. 3. Mercuric chloroiodide - copper (I) iodide. 4. Mercuric chloroiodide Sliver iodide. 5. Mercuric chloroiodide - copper (I) tetra iodo mercurate. All these reactions were studied by reflectance and resistivity

measurements, chemical and X-ray diffraction analysis. Kinetics of the reactions were studied by visual technique.

----, -----, METAL, CHELATES, DONOR MOLECULES, SYNTHESIS, REACTION.

45. Afshan Zabeen. Synthesis and reactivity of metal chelates with biologically active donor molecules. Deptt. of Chemistry. 1993. L. 192 l. Bibliography : 187 -91 l. Supervisor : K.S.Siddiqi.

The macrocyclic ligands incorporating nitrogen or both nitrogen and sulpher donor atoms are of interest. The chemistry of macrocydic ligands and its exciting applications has prompted the study under taken in the present work. In this work several new macrocyclic ligands have been synthesized with a view to prepare complexes which would be helpful in elucidating several aspects of the macromolecular biological system. In this project three new types of macrocyclic ligands, 7.12 -diamino-1,4,8,11-tetraazacyclo -tetradeca 8,11-diene (L_1), 9,11- dimethyl-1,4,8,12 -tetraazacyclopentadeca-8,12-diene-7,13-dione (L_2), 14-Amino -3-pyridyl-1,4,8,11-tetraazacyclotetradeca-1, 3-diene-5-one(L_3) and a simple Schiff base ligand N,N'-di-2-(3-Pyridyl-1,2,4-triazol-5-yl) ethyl ethylene diamine (L4) derived (a) by the condensation reaction of 4,7-dia-

zadecanediamide with acetylacetone and ethylene-diamine (b) by the condensation reaction of 4,7-diazadecanediamide with isoniazid in 1:1 and 1:2 molar ratios have been prepared. In the third chapter the preparation of three new Schiff base ligands. The complexes of these ligands with Cr.(III), Mn.(II), Fe(II), Ni(II), Cu(II) and Zn(II) have been characterized by elemental analysis, magnetic suspectibility measurements and electronic and infrared studies.

-----, -----, -----, -----, HETROBI, BIOCIDAL, SYNTHESIS.

46. Farukh Arjamand. Synthesis characterization and biocidal activity of novel heterobimetallic chelates. Deptt. of Chemistry. 1993 l. vi, 141 l. References: 132 - 141 l. Supervisor:K.S.Siddiqi.

In this thesis the synthesis of a variety of heterobimetallic chelates under different reaction conditions has been undertaken. The magnetic and spectrochemical behaviour of heterobimetallic chelates is entirely different from those containing only one metal atom or two similar atoms. Heterobimetallic complexes of type $(M(SCZ)_2\ M'\ CL_4)$ were synthesised by the reaction of $(M(SCZ)_2)\ CL_2$ with $M'CL_4$. Complexes of Cu(II) and Ni(II) with Schiff base derived from the condensation of 2-amino-

3-formyl chromone and 1,3-diaminopropane have been synthesised. The conductivity measurements indicated that they are ionic in DMF and DMSO, the transition metal ion is octahedrally coordinated whilst the group (IV) metal atoms have a tetrahedral geometry.

-----, -----, METAL COMPLEX, GROUP IV, SYNTHESIS.

47. Fathi Mohd. Amin Mohd. Aqra. Synthesis and structural studies of group IV metal complexes. Deptt. of Chemistry. 1994. L. viii, 131 l. reprint : 132. References : 113 - 31 l. Supervisor :K.S.Siddiqi.

This thesis covers the synthesis and structural studies of (1) novel heterobimetallic complexes containing copper (II) and a group IV metal and (2) new group IV metal complexes with a variety of mono and multidentate ligands such as dithiocarbamates, tetrahydroborate anion, $Sn\,Cl_2$. (Pyridine) and poly (4-vinyl pyridine-N-Oxide). A number of group IV metal complexes of the type ($MCl_4\,L_2$), ($Ph_3\,Sn\,Cl\,L_2$).($Ph_3Sn\,ClL_2$) and ($Ph_4\,SnL_2$)*. The results of elemental analysis, i.r. spectra and conductivity measurements indicate that the compounds are non-electrolytes. An appreciable decrease in the N-O has been observed in the i.r. spectra of the complexes suggesting coordination through N-Oxide. A octohedral

geometry has been proposed for the central metal atom concomitant with a trans-configuration. * (M Si,Ge,Sn, Ti and Zr; L poly (4-vinyl pyridine-N-oxide)) have been synthesized by treating poly (4-vinyl pyridine-N-oxide) with MCL_4, Ph_2 $SnCL_2$, Ph_3SnCl and Ph_4 Sn in a 2:1 ratio, respectively.

-----,-----,-----, TRANSITION, DONARLIGANDS, CO-ORDINATION, NITROGENSULFUR, OXYGEN.

48. Devendra Kumar. Co-ordination chemistry of transition metals involving nitrogen, sulfur and oxygen Donor ligands. Deptt. of Chemistry. 1992. 118 l. References : 116- 18 l. Supervisor : Mohammad Shakir.

Reaction of 4-cyano-5-aminopyrazote, $H4CN5NH_{2pz}$ in E OH with anhydrous transition metal chlorides and group 11B metal chlorides, $MC1_2$ (M Cr(II), Mn(II), Fe(II), Co(II), Ni(II), Cu(II), Zn(II), Cd(II) and Hg (II)) in THF afforded the isloation of the complexes of the type, ML_4 Cl_2 (L $H4CN5NH_2$ pz). Theresults of elemental analysis of these compounds recorded on KBr dises exhibit well resolved bands which have been assigned comparing with the bands obtained for free ligand. The non-involvement of primary oxygen of the ligand in coordination has been inferred by comparing the composition of (C-O) (1060-1070cm^{-1}

with that observed for bridged OCH_3 or OC_2H_5 groups in metal alkoxides. The measurements on the magnetic properties of complexes obtained from ($Cu(PPh_3)_3$(1), ($Ag(PPh_3)_3NO_3$) indicate their diamagnetic nature.

-------, ------, -----, -----, ELECTRON, LIGANDS, COORDINATION.

49. Abdul Basar. Studies on the coordination compounds of transition metals containing ligands of electron rich elements. Deptt. of Chemistry. 1990. 113 l. References : 113 -126 l. Supervisor : K.S.Siddiqi.

Describes the lanthanides from covalent bond with the ligands and the absorption originating within 6-6 orbitats is greatly influenced by the approaching ligands. Moreover, the 6-orbitals find difficult to be involved in coordination. Though the lanthuide (III) Salts are hygroscopic, their chelates are air stable and non-hygroscopic. However, the stability of the chelates increases with the increase in atomic number of Lanthanides as a result of lanthanides contraction.

------, ------, PLASTICS, FINISHED, ADDITIVES, TOXIC, EFFECT.

50. M.Abdul Khaliq. Studies on the migration of chemical

----, ---, PLASTICS, FINISHED, ADDITIVES, TOXIC, EFFECT.

50. M. Abdul Khaliq. Studies on the migration of chemical additives from finished plastics and their toxic effects. Deptt. of Chemistry. 1993. vi, 187. Bibliography : 164 - 87 l. Supervisor : Satya P. Srivastava and Wajid Husan Ansari.

Reveals the migration phathalate esters viz. di (2 ethythexyl) phathalate (DEHP), dibutyl phathalate (DBP), dimethyl phathalate (DMP) and uncreated styrene under various test conditions from the tubings commonly used for oral/nasal feeding. The toxicity of the leachable phathalate plasticizer and orgonation stablizer has been studied with respect to polymine biosynthesis. Effects of combined exposure of these leachate have also seen to evaluate the potential of their toxicity during their interaction.

------, ORGANIC, NATURAL PRODUCTS (PHYSIO-CHEMICAL) SYNTHESIS PESTICIDES.

51. Mohammad Asif Ahmad. Chemistry of natural products. Deptt. of Chemisrry 1992. 84 l. Bibliography 37,14, 21,12. Supervisor : W. A. Ansari.

Deals with the compositional studies of an inegenous plant Murraya Koenigii and also describes the

work of synthesis of some heterocyclic systems in fatty acids and organochlorine pesticides. Murraya Koenigii were examined for the presence of flavonoidic compounds, using chromatographic and spectroscopy techniques. Presence of four compounds Quercetin-3 O-B-D-glucopyranoside, 2-phenylbenzoic acid, B-Amyrin and B- Sitosterol were reported. The reaction of three fatty acid substrates, methylundec-10-enoate (I), undec-10-en-L-OL (II) and (Z)-octadec-9-enoic acid (III) with malonic acid in the presence of manganese triacetate.

------, ------, OIL CHEMISTRY, SEED FATS, FATTYACID.

52. Mohammad Belal Ahmed. Studies on seed fats and fatty acid. Deptt. of Chemistry. 1992 x, 113 l. Summary : i-x. References : 20, 104 - 12 l. Supervisor : S.M.Osman.

Deals with the compositional studies of minor seed oils/cakes and embodies the work related to the synthesis of oxygen, sulphur, nitrogen and phosphorus containing fatty acid derivatives. Also deals a study of seed oils from eight different species belonging to less familiar families. A variety of reactions on long-claim definic, acetylenic, hydroxy and oxo fatty acid esters are described.

-----, -----, STEROIDS, KETONES, CHEMICAL, SPECTRAL ANALYSIS.

53. Ejaz Ahmed Khan. Chemical and spectral studies of modified steroids. Deptt. of Chemistry. 1979. ix, 179. ill. References : 92-96, 177 - 79 l. Supervisor: Shafiullah.

α,β - unsaturated steroidal ketones, cholest-5-en-7 one (xi), 3β -acetoxycholest-5-en-7-one(xi) and 3β - cholorocholest-5-en-7-one(xi) were subjected to α - bromination conditions. The treatment of (xii) with pyridine under reflux gave the parent ketone (ix). A tentative mechanism is being proposed to account for the gormation of parent ketones from the corresponding dibromoproducts. Peracid oxidation has been extensively used for the preparation of steroidal lactones. The structure of these compounds were determined on the basis of their spactral properties.

------, ------, SYNTHESIS, HETROCYCLES (OXYGEN, NITROGEN) MEDICINAL VALUE.

54. Chauhan, Anuja. Synthesis of oxygen and nitrogen hetrocycles of medicinal value. Deptt. of Chemistry. 1991. 144 l. References : 31 - 35, 74- 80, 103-105, 144 - 46 l. Supervisor : Asif Zaman.

Pyrimidine and its derivatives have been exten-

sively investigated by organic chemists due to their close association with life processes. It involves the reactiono of different 1,3-diarylthiobarbituri acids with salicylaldehyde in methanol and a few drops of conc. HCL. The reaction of 1,3-di(4-methylphenyl)-2-thiobarbituric acid with salicylaldehyde in the ratio of 2 : 1 methanol and HCL at reflux temperature resulted in the formation of a solid product in good yield. The compounds (6 6 -f) were synthesised by the reaction of appropriate chloracetyl thiobarbiturie acid derivative with amonium dithiocarbamate. Presence of the hydroxy group was confirmed by I.R. spectra and derivatisation with Ac_2 o/ Py.

------, PHYSICAL, BIOMEMBRANCE, IONTRANSPORT.

55. Bulla, Nisar A. Transport of ions through biomembranes. Deptt. of Chemistry. 1995. 79 1. References: 69-79 1. Supervisor : Nurul Islam.

The electrical conductance, capacitance, and impedance of acqueous solutions of several electrolytes were recorded across the peritoneal memberance of buffalo (Bob.bubalis) aged between 18-24 months in a thermostated bath of $\pm$ 0.1° thermal stability. The diffusion of ions across the biomembrane turns out to be

selective in nature in allowing certain ions with more ease than those of the others.

-----, -----, KINETIC, CHEMICAL, COLOUR REACTION, α-AMINO ACIDS & COMPOUNDS.

56. Gupta, Dileep. Studies on the kinetics and mechanism of the colour reactions of α-Amino acids and its relates compounds. Deptt. of Chemistry. 1992. 411 l. References : 176 - 8, 287 - 381, 411- 12 l. Supervisor : A. Aziz Khan.

Various chemical and physico-chemical techniques for the qualitative and quantitative estimation of α-amino acids. Ninhydrin has been widely used for this purpose. The kinetics and mechanism of Cu(II) and Cd(II) complexes of amino acids with ninhydrin. The amino acids were chosen with different substituents to investigate their effects on the reactivity of their complexes. A mechamism for the decarboxylation of asparatic acid with ninhydrin for the evaluation of two moles of carbondioxide and rate equation has been derived.

-----, -----, MICELLAR SYSTEMS.

57. Chaprala, Durga Prasad. Studies on the properties of normal and reversed micellar system. Deptt. of Chemistry. 1991. viii, 152 l. Reference : 39-53, 92-95, 124-75, 152-54 l. Supervisor : H.N.Singh.

This thesis concerns the studies on surfactant solutions in aqueous and nonaqueous media. Examines various factors responsible for their micellar and absorption behaviour under different conditions. The effect of n-amines on sphere-to-rod transitions in aqueous micellar solutions of cationic and anoinic surfactants was studied by viscosity method at various temperatures. Studies on the structural transitions of CTAB micelless in aqueous potassium bromide solution with the edition of alcohols or increasing temperature. For cyclohexylamine systems G_3^o/CH_2 of n-alkanes were found to be -175 J/mole with both the surfactants CTAB and CPC.

-------, -----, RHYSICO-CHEMICAL, ORGANOTION, POLYRGANYL BORATES.

58. Hashmi, Athar Adil. Synthesis and physico-chemical studies on organotion (IV) Derivatives of Polyorganyl borates. Deptt. of Chemistry. 1994. v. 84 l. References : 12-22, 34-35, 50-51, 65-66, 84 l. Supervisor: Abdul Aziz Khan.

Complexes have been prepared from the appropriate organotion chlorides and K ($HB(Pz)_3$) in dichloro methane. The effect of the presence of methyl groups on pyrazote on the physico-chemical properties of organotin complexes

were found. A series of organotion (IV) complexes with bi-and tridentate ligands containing methyle substituents on 3rd and 5th corbon of the pyrazolyl borate have been synthesized in dichloromethane. Slight distortian is observed in orgnotin moiety with a bent C-Sn-C structure. The ring proton signals were affected by addition of D_2O.

GEOGRAPHY, AGRICULTURAL, DEVELOPMENT effect of : MARKET, PERIODIC, UTTAR PRADESH, FAIZABAD.

59. Nizamuddin Khan. Impace of periodic markets on agricultural development in Faizabad district U.P. Department of Geography. 1988. vii, 331 l.ill. Bibliography : 306 -31 l. Supervisor : K.Z.Amani.

The Studies of periodic market and its role in rural and agricultural transformation is an important aspect of marketing Geography. To examine the relation between periodic markets and agricultural development which affects the socio-economic life of the rural population. To understand the role played by periodic markets in agricultural development through marketing of surplus of different agricultural commodities in them. On the basis of detailed survey of the existing situation a number of suggestions have been given which if implemented properly would go a long way in helping the farmers and in general development of agriculture in the area.

----, ----, ----, ----, ----, role of TECHNOLOGY NORTHBIHAR.

60. Siddiqui, Shamsul Haque. Role of changed Institutional and technological factors in the Spatial Development of Agritulture in the North Bihar Plain. Deptt. of Geography : 1986. xx. 248 l. Bibliography : 235-48 l. Supervisor : M.Farooq Siddiqi.

To assess the level of agricultural development in the North Bihar Plain and to suggest means and ways for optimal development of the existing land resources. The application of technology and reforms made by various institutions have played a dominent role in the advent of 'Green Revolution' in the country leading to an increased agricultural production, but the rate of development due to adoption of modern technology and reforms today is spatially uneven and this phenomenon is also visible in the North Bihar Plain. To highlight the regional disparities in agricultural development in one of the agriculturally important regions of India,i.e., North Bihar Plain. An analytical study of area and production of principal crops and their trends with respect to the impact of various institutional and technological indicators in the N.B.Plain.

-----, ----, -----, ----, role of U.P., WESTERN, 1950-51.

61. Waliullah Khan. Role of technological and institutional factors in the agricultural development of Western Uttar Pradesh since 1950-51. Deptt. of Geography 1994. xv, 286 l. ill. Bibliography : 276- 86 l. Supervisor : M.Farooq Siddiqi

The study area is the most developed and prosperous region of the state of Uttar Pradesh but the intra-district imbalances can be seen. The backward areas lack adequate infra-structure. Because the variations in the level of the development in vargous districts are accompanied by equally sharp variations in infra-structure facilities. The region is the centre of agricultural activities from the very beginning. Avout 75 per cent of the region's area and 70 percent of its population is engaged in agriculture. The region occupies the fertile north-western portion of the upper Ganga plain which is well endowed with water resources and good climatic conditions which have favoured agricultural development. The region has a well developed drainage system which plays a dominant role for the development of agriculture. The soils of Western Uttar Pradesh are of the alluvial origin, geologically grouped as Khadar,

bhangar and tarai variates. The overall assessment of the problem reveals large variations in the agricultural development at micro level in Western Uttar Pradesh. The general distributional pattern of agricultural development shows a marked decline from north to south. This pattern is in close confirmity with the variations in the level of agricultural technology.

-----, ----, -----, ------, RURAL U.P. ALIGARH 1960

62. Tyagi, Sadhna. Role of technology in agricultural and rural development of Aligarh District since 1960. Deptt. of Geography. 1988. xv, 313 l. ill. Bibliography : 298 -13 l. Supervisor : Abha Laxmi Singh.

Aligarh district was one of the ten districts of Uttar Pradesh which qualified for the highest level of development. This district was selected for the Intensive Agricultural District Programme (IADP) in 1961 -62. To analyse the physical features, drainage and climate of the district and now these factors have helped in the development of agriculture in Aligarh district. An assessment is made of the agricultural conditions in the pre and post Green Revolution period and the nature of change that took place. The blockwise assessment of

growth of crop out put and analysis of the contribution of the different component elements of this growth. Deals with the inter-block variations in agricultural development. An attempt is also made to study the factors affecting variation in yield in the different blocks. Eluci dates the components of rural development and tries to assess the factors affecting variations in rural development. An attempt has been made to identify the levels of overall development in the various blocks of the district. Thus a proper balanced development strategy should aim at increasing the level of development of all the blocks so that the district keeps on moving towards higher and higher level of development.

-----, -----, DRY FARMING, RAJASTHAN, WESTERN .

63. Qureshi, Salahuddin. Regional analysis of dry farming in Western Rajasthan. Deptt. of Geography. 1986. xi. 356 l. Bibliography : 329 - 356 l. Supervisor : Mohammad Shafi.

A regional analysis at macro-meso and micro level has been attempted with reference to soil moisture conditions, water harresting and cropping potentials on the drylands of Western Rajasthan which comprise over 8 million hectares of the total cultivated land in the

region. Inadequacy and uncertainity of rainfall often cause partial or complete failure of crops leading to recurring scarcity and famine. Aravallis is the most prominent feature of the landscape and sandy wastes are the dominant features of the relief. The land forms are also alluvial plains, salt depressions and isolated low hills rising above the sands. The fertile alluvial plains are covered by dunes. The streams are mostly 'misfit' and soon die out in the desert. One of the reasons of misfit streams may be seepage or 'under flow' through thick alluvium of the flood plain. Luni is the only organised river of this region and flows through the fertile bagar land, Drainage becomes sparse and ephemeral towards the west under the influence of accentuating aridity. The variety of natural vegetation in this region tends to impress upon the onlooker. The soils are generally sandy, and owe their origin to aeolian agencies. They are textureless with wider porespace. The presentage of clay is very small at the surface than in deeper layers. The uncertain behaviour of mansoon is the greatest climatic hazard in this region. Relative humidity during the rainy season remains fairly high but the rains are not in accordance with the humidity figures. The soils of W.Rajasthan require adequate

quantity of fertilizers. Use of nitrogen is essential in Western Rajasthan in normal and good rainfall years to counter the problems of alkalinity and salinity. Fertilizer use reduces the pH value of alkali soils. Mixed cropping could be more efficient and remunerative than single cropping. There are frequent instances when crops fail due to moisture deficiency in the root zone but adequate moisture exists in the lower layers. Some of the fruit crops with strong and deep root system give satisfactory results under dry conditions. The scrutiny of aridity indices has revealed encouraging conditions of farming potentials. Regions of fairly large prospects have been identified in the northeast in Sikar and Jhunjhunu and in the southeast in Pali and Jalore.

------, ------, FOODCROPS, PRODUCTIVITY, MEASUREMENT, UTTAR PRADESH.

64. Hifzur Rahman. Measurement of food crop productivity and productivity regions in Uttar Pradesh. Deptt. of Geography. 1980. xxvi, 437 l. ill. Bibliography : 422 - 34 l. Supervisor : Mohammad Shafi.

Often an underdeveloped economy of a certain

region is characterised by low level of productivity in agriculture. The objective behind the assessment of agricultural productivity is to find ways of increasing output per unit of input and of attaining desirable interfarm transfer of production resources. While determining food crop productivity, district is taken into account as the unit of study. Measurement of food crop productivity is of great importance in an agriculture based economy with the rising population the measurement of food productivity not only indicates imbalances in production but also suggests the methods to increase production. The cause of high productivity in high productivity regrons is revealed by variables of composite manner and other power appliences keeping other resource inputs constant. Other measures which may be regarded as the basis for increasing productivity of low and very low productivity regions of the state.

-----, -----, FOOD, STORAGE, LOSSES, U.P., WESTERN.

65. Akhtar Reyaz. Spatial study of the food storage and associated losses in Western Uttar Pradesh : A study in food systems. Deptt. of Geography. 1993. xiii, 530 l. ill. Bibliography : 515 - 530 l. Supervisor : Mohammad Shafi.

To examines critically the quantum and the spatial variation of losses of foodgrains in the post-harvest technology and the factors which are responsible for such losses. To identify the problems in storage, quantities stored and lost in various storage methods. To study the methods of storage at to losses caused by biological agents. To study the regional patterns of the post-harvest losses of cereals and pluses and the role of soil in the regional patterns of losses of food grains in the study area and to study the post harvest losses of cereals and pulses in the different soil zone.

------, -----, LAND USE, CROP PATTERN, GANGA-YAMUNA DOAB, 1911 -61.

66. Shafaat Ali Khan, Kr. Changes in land use and crop patterns in Ganga-Yamuna doab since 1911 to 1961. Deptt. of Geography. 1989. xvii, 241 l. ill. Bibliography : 226 - 240 l. Supervisor : Mohammad Shafi.

The variety of crops that are cultivated keep on gaining or losing areas underthem. Three types of land form regoins are discernivle, the foot-hill region, Khaddar and Bhangar regions and influences the land uses and agricultural pattern in the Ganga-Yamuna doab. The

main rivers are Ganga and Yamuna flowing towards southeast other streams are minor and seasonal in character. The climate of doab is produced by the south-east and north-east mansoon. The dry seasons test from November to middle of June. Rainfall is an important element in the agricultural context. Geologically the soils fall in two groups : The new alluvium and the old alluvium. The land use picture in one which does not remain the same.

-----, -----, -----, -----, U.P., WESTERN, 1950-

67. Tazin Wase. Changing pattern of crop land use in Western Uttar Pradesh (since 1950). Deptt. of Geography. 1985. 211 l. ill. Bibliography : 201-211 l. Supervisor : Niaz Ahmad Siddiqi.

Deals with the physical features and land forms. A detailed study of the 'khadar' and the 'bhangar' lands and also the drainage pattern of the area. Study of various types of soils that are found in the area. These soils have a great deal of bearing on the crop cultivation in Western Uttar Pradesh. Climates have very much influenced the cropping pattern of the area. The distribution of main crops and their spatial distribution in the area are studied.

------, -----, ------, JAMMU AND KASHMIR, JAMMU.

68. Raina, Jawahar Lal. Locational analysis of agricultural land use in the Jammu District (Jammu & Kashmir). Deptt. of Geography. 1985. ix. 219 l. Bibliography : 216 - 219 l. Supervisor : Mohammad Shafi.

The main crops grown are wheat, rice maize, pulpses and millets. The topography, soil, climate, rain fall and particularly irrigation facilities are quite favourable for growing a number of crops in the district for both Kharif and Rabi seasons. The graphs of different zoning pattern arethat in the villages of Jammu, the intensity of land-use does not show any relationship with the distance from the settlement. It is mainly the availability of irrigation facilities which influences the location of the pattern of crops. Besides irrigation, which is the major determinant of cropping pattern, there are other factors involved in the development of cropping pattern.

-------, ECONOMIC, FOREST RESOURCES, JAMMU AND KASHMIR.

69. Gurbax Singh. The distribution and utilization of forest resources of Jammu and Kashmir State. Deptt. of Geography 1980. xiv, 392 l. ill. Bibliography : 336- 45 l. Supervisor : Mehdi Raza.

In case of chir pine the study reveals that this

crop is totally absent in the Kashmir province further that in Jammu province too it is extremely unevenly distributed. Forest based industries do not enjoy that position in the economy of the state which is expected of them. The kail crop has got the maximum benefit : on about 70 per cent of the areas under fir, routine regeneration measures would be sufficient for achieving the desired results if grazing is controlled. Conditions of natural regeneration in the scrub and degraded forest of outer hills in general and bamboo forests in particular are in a pretty bad shape.

-----, ----, INDUSTRY, FRUITCULTURE, J.& K, KASHMIRVALLEY.

70. Mohammad Rashid, Ch. Fruit culture and allied industries in Kashmir Valley. Deptt.of Geography. 1984. xx, 199 l. ill. Bibliography : 156 - 60 l. Supervisor : N.A. Siddiqi.

Influences of geographical factors which have not only given the Kashmir Valley. Fruit cultivation together with allied industries constitutes the backbone of the rural economy of the Kashmir Valley as more than 30(Thirty) per cent of the valley population is directly or indirectly engaged in fruit growing activities. Fruit culture has to face a number of problems right from setting of the orchard

till its marketing. These problems are in the form of restricted area available for orchard development, encroachment upon the orchards on account of construction of houses, diseases, pests and influence of middle men etc. Allied industries which may ensure better economic conditions for the people of the valley by creating more job opportunities, proper consumption of low grade fruits in the form of jams, jallies, pickles and juice etc., it is not possible to increase the income per capita and remove the poverty of the people inhabiting the vale of Kashmir.

-------, HUMAN,POPULATION and ECONOMIC DEVELOPMENT, UTTAR PRADESH, TARAI REGION.

71. Farzana, B. Population problem and economic development in Tarai Region of Uttar Pradesh. Deptt. of Geography. 1990. iv, 244 l. ill. Bibliography : 237 - 44 l. SUPERVISOR : S.M. Rafiullah.

The present work highlights two different but most compact factors of Tarai region. First concerns about population growth and the second is related with the correlation of population and economic development. The rapid and unchecked growth affects directly the economy of the region and acts as a hinderence in the

way to economic development. To be sure there are many economic, social and psychological factors which are responsible for the rapid growth of population. These two sectors have been measured on the basis of sixteen socio-economic indicators, selected for the purpose of explanatory analysis. The rate of economic development is very slow. As a result the region still faces the problem of limited resources and increasing population.

------, ------, -----, UTTAR PRADESH.

72. Siddiqui, Tarasat Ali. Regional/structural analysis of the population of Uttar Pradesh. Deptt. of Geography. 1980. xxi, 627 l. ill. Bibliography : 619 - 27 l. Supervisor : S.M.Rafiullah.

Human geography deals with the numbers, density and characterstics of human population in the regional prospective. The case of rural and urban sector is much different from the total population. The sex ratio in rural population is higher than the sex ratio in urban in all the districts. Sex ratio of workforce also varies from rural to urban population due to migration of male work force from village to towns. The sex ratio in aged population is high in the eastern, central and the Himalayan district whereas low relatively in western

districts. For state as a whole female participation rates in all economic activities are substantially low in urban areas while it is quite high in rural areas. The urbanization, industrialization and migration are corrected negatively but significantly with primary occupation of rural and urban population.

------, -----, SETTLEMENTS, MORPHOLOGY, GREATER ADEN.

73. Shurky, Hazem Ali. Morphology of greater aden and related problems. Deptt. of Geography, 1986. xxix, 431 l. ill. Bibliography : 401 - 16 l. Supervisor: Mohammad Shafi.

The structural and morphological aspects of the city and its functional correlation. Deals with functional aspects of the city and analysis the linkage between the metropolis and the supporting regions. It places sufficient emphasis on the level of sybnbiosis between the various segments of the city. General description of built-up area and non-built-up area of Aden governorate including agricultural zone, sand dunes and hilly areas, residential and trade and commerce functions have been detailed. Stress on the educational, industrial, transport and communication, cultural administrative and medical services. Examines the characteristic of the

harbour and the function of the port. Deals water supply, drainage, electricity and their future prospects with respect to population.

------, ------, ------, RURAL, GANGA-YAMUNA DOAB.

74. Gupta, Jagdish Prasad. Types and pattern of rural settlements in Ganga-Yamuna Doab. Deptt. of Geography. 1984. (iv) 177 l. ill. Bibliography : (i) - (x) l. Supervisor : Mohammad Shafi.

Analyses the distributional aspects of the types and patterns of rural settlements in the Ganga-Yamuna Doab. An attempt at understanding the geographic characterstics and spatial variations of the Doab's r rural settlements. The degree of agglomeration or spatial variations of their size, functional land use, caste composition and occupational structure are the subject matter. Also includes the study of spatio-functional aspects of the rural settlements of the Ganga-Yamuna Doab. Attempts has also been made to examine the quantitative expression of the locational patterns of rural settlement. It is based on field work of the area and collected data by visiting the area.

-----, -----, -----, URBAN, COMPRISION, TRANS-GHAGHRA PLAIN, UTTAR PRADESH.

75. Mohammad Siddiqui. A comparative study of the urban centres in the Trans-Ghaghara plain in Uttar Pradesh. Deptt. of Geography. 1979. viii, 485 l. ill. Biblio graphy : 476 - 85 l. Supervisor : Mohammad Anas.

Covers almost all generalized aspects of the region related to the problems of Urban Geography. Discuss the residential, commercial, industrial, administrative, educational, medical, recreational and other areas. Deals with the public utility services provided by the municipal and non-municipal bodies. The effect of the town on the neighbouring villages in terms of agricultural productivity and facilities relating to education, transport, health services, electricity supply and postal services.

------, ------, ------, ----, ECONOMIC, RAJASTHAN, EASTERN.

76. Rizvi, S.Muniruddin. Hierarchy of service centres in Eastern Rajasthan. Deptt. of Geography. 1982. xviii, 226 l. ill. Bibliography : 220 - 26 l. Supervisor : Mohammad Anas.

To study the hierarchical order of settlements in Eastern Rajasthan. Towns have been considered to be service centres as it is difficult to study all the

settlements on macro-level. On thoughtful consideration, the indices used for the present study are population, education, industries, recreation, transport, communications, marketing and medical facilities. The physical geographical conditions in this region are such that it can well be used for testing the validity of the Central Place Theory. The statistical data used for population relates to the different years.

-----, -----, -----, -----, effect on RURAL ECONOMY, UTTARPRADESH, ALIGARH.

77. Mohd. Ishrat Saeed Khan. Urban influence on rural economy in Aligarh District U.P. Deptt. of Geography. 1993. xi, 320 l. ill. Bibliography : 304 - 20 l. Supervisor : Abdul Aziz.

Discusses direction and magnitude of the rural economic transformation taking place in village of Aligarh District under the influence of urban centres. To measure the change, intensity and spatial dimension of the impact of this urban phenomenon on the economy of the tradition - bound villages of Aligarh. To measure quantitatively the change in village economy. If rural economy is disturbed by rapid as well as un-planned urbanisation, undesirable and harmful results may

follow. An analytical study of these processes of change in the village with a view to measure the degree and nature of the influence on rural economy would be of great geographical significance. Author brings out the complementary nature of relationship between village and town, and will show the spatial structure of urban influence in the countryside.

-----, -----, -----, -----, NORTH INDIA, MEDIVAL PERIOD (1556-1668 A.D.).

78. Vandana. Urbanisation in North India during the medival period (1556-1668 A.D.).Deptt. of Geography. 1989. x, 205 l. ill. Bibliography : 194- 97 l. Supervisor : Abdul Aziz.

This study of towns of North India during the sixteenth and seventeenth centuries covers a period of hundred years. Mughals developed irrigational and transport facilities which supplemented agricultural and industrial growth and accelerated the pace of urbanisation. Mining of minerals and metals and minting of coins contributed significantly to the rapid urbanisation process during the Mughal period. Forests were of great value for the urban economy of the Mughal Empire. The growth of cotton and textile industry was a direct result

of four factors during the Mughal period.

------, ------, ------, -----, RESIDENTIAL STRUCTURE, LUCKNOW.

79. Fakhruddin. Residential structure of Lucknow : A study in Quality of Urban Life. Deptt. of Geography. 1984. viii, 247 l. ill. Bibliography : 236 - 47 l. Supervisor : Abdul Aziz.

Studies the differences in the quality of life in the various residential areas of the city of Lucknow. Residential structure of the city is analysed by employing factor analysis. Residential patterns seems more influenced by historical circumastances and less by economic reasioning. The evolution of residential pattern and environmental structure in the city are out comes of persistance of traditional structure; colonical modification; and underdevelopment and poverty.

------, POLITICAL, INDIA.

80. Iqbal Mohiuddin. The republic of India : Some aspects of political geography. Deptt. of Geography. 1979. xiii, 369 l. ill. Bibliography : 320 - 28 l. Supervisor : Mohammad Anas.

Political geography as an important branch of

and propose the basic planning units : and to suggests a new framework for the implementation and administration of rural development planning in the tahsil.

GEOLOGY, GEOCHEMISTRY, MINERALOGY, BASEMETAL, INDIA, BIHAR, SINGHBHUM SHEAR.

82. Akhunji, Rashid A. Gensis of the basemetal mineralization in the southeastern and central-sectors of the Singhbhum Shear zone Bihar (India). Deptt. of Geology. 1983. 197 l. ill. Bibliography : 177 - 192 l. Supervisor : S.H. Rasul.

The study area falls within the southeastern and central sector known as the Sirghbhum Shear zone, Bihar State, located on the northeastern part of Indian precambrian shield. The following minerals have been identified in sulphide ores : Chalcopyrite, pyrite and pyrrhotite are major Sphalerite, magnetic (ilmenite), chalcocite, covellite, bornite, molybdenite, illerite, galena, tellurbismuth and tetradymite are minore and cubanite, valerlite, marcasite, pentlandite and violarite are exsolved. Study of trace elements like Cu, Pb, Zn,Co, Ni, R6 and Sr. in feldspathic rock and other rocks idicates that the abundances and veriation ranges of the elements are different in different rocks.

-------, -----, -----, BAUXITE, BIHAR, RANCHI, LOHARDAGA.

83. Abdul Rahman. Geochemistry and genesis of Lohardaga bauxite deposits, Ranchi district, Bihar. Deptt. of Geography. 1979. 339 l. ill. References : 322-37 l. Supervisor : S.H.Israili

The differential thermal analysis of bauxites indicates the presence of clay minerals such as gibbsite, bochmite, keolinite, illite, halloysite and allophane. The presence of kaolinite is indicative of acid environment with poor drainage & swampy condition. The major element geochemistry of bauxitic profile indicate that there is an enrichment in Al_2O_3, Fe_2O_3, TiO_2, MnO and L.O.I., whereas SiO_2, Feo. Na_2O and K_2O have been depleted. Variation in Al_2O_3 is maximum in bauxites. Ti enrichment is favoured more in bauxites. Presence of Ti^{4+} ions are responsible for precipitation of $Al(OH)_2$, a key role for bauxitization. The trace element geochemistry shows the enrichment of Cr, Co, V, Ni, Zr, Cu and Ga, in the decreasing order.

-------, ------, COAL, INDIA, BIHAR, RANIGANJ, DAMODAR VALLEY.

84. Ajay Kumar. Raniganj sedimentation in Damodar valley coal fields of Eastern India, Deptt. of Geology. 1983. 178 l. ill. Bibliography : 160-77 l. Supervisor S.M.Cassyap.

The surface analysis based on brochole logs reveals

that sandstone bodies are thicker and associated with thinne fine clastics in Raniganj coalfield. The bulk of feldspathic and tithic sediments of Raniganj coalfield was derived largely from the Chotanagpur highlands to the east-southeast and south consisting of precambrain granite gneiss and low to medium-grade metamorphic rocks including garneferous schist, phyllite and state. The contention that the Raniganj sedimentation took place in a unified Gondwana basin belt rather than in separate basis of the Damodar valley. Post Godwana faulting and subsequent erosion may account for present disposition of the disconnected out layers in Damodar valley basin.

-----, -----, ------, COPPER, INDIA, BIHAR, SINGHBHUM.

85. Bhardwaj, Rajeev. Geology and Geochemistry of the Sighbhum copper belt (Southern Sector) Bihar, India. Deptt. of Geology. 1986. 160 l. ill. References : 146 - 60 l. Supervisor : I.D.Pant.

Detailed study of the sulphide mineralization in Surda - Pathergora area, Southern sector of the Singhbhum copper belt. The sulphide mineralization has been mainly controlled by foliation planes (S_2) and slip planes (S_3) in chlorite -biotite-quartz schists at surda and feldspathic schists in Pathergora mines. Metallogeny has been

discussed considering field observations substantiated by petrological, mineralogical and geochemical data. Various known base metal source models (magmatic, hydrothermal, plate tectonic and metamorphic) are discussed.

-----, -----, -----, IRON DEPOSIT, PALAEOENVIRONMENT, KUSTAGISCHIST, INDIA, KARNATAKA.

86. Riyaz Md. Kamaruddin Khan. Geology, Geochemistry and palaeoenvirment of deposition of banded iron formation of the Kushtagi Schist belt, Karnataka Necleus, India, Deptt. of Geology. 1993. viii, 232 l. ill. References : 202 - 32 l. Supervisors : S.M.Zaimuddin and S.M. Naqvi.

Studies the least metamorphosed BIF along with underlying basic and acidic metavolcanics provides an excellent opportunity to analyse the chemical processes, as a basis for interpreting the palaeoenvironmental conditions of deposition. The Kushtagi Schist belt have been studied to decipher the (1) source of FeO, SiO_2, O_2 (2) depositional environment and tectonic setting and (3) constraints of their geochemistry on the Archean plate tectonic model. BSIF interbedded with the CBIF shows entirely different geochemical characters as a

result of modification by detrital processes.

-----, ----, ----, MANGANESE, INDIA, ORRISA, KEONJHAR, BARBIL.

87. Mohd. Ajmal. Manganese mineralization around Barbil, district Keonjhar, Orrisa(India). Deptt. of Geology. 1984. viii, 143 l. Bibliography : 118 - 27 l. Supervisor : S.H.Resul.

Investigates the nature of mineralization of manganese ore around Barbil, Keonighar district, Orrisa with a perticular reference to the mode of occurrence, minerralogy, tixture and geochemistry of manganese ores. The mineralization of manganese is confind wither to the shale or to the laterite capping the shale. The distribution of ore in the study area is highly erratic and irregular. The ore of the study area is characterstically low in Cu, Pb, Zn, Sr, Mo, and V contents.

-----, ----, -----, PEGMATITE, MICA, BIHAR, RAJASTHAN.

88. Anwar Rais. Geochemical study on pegmatites in parts of Bihar and Rajasthan mica belt. Deptt. of Geology. 1981. 159 l. ill. References : 147- 59 l. Supervisor: Syed M. Zainuddin.

Evolves some yeochemical criteria or guides which can be helpful in locating and exploration of different

economic minerals present in them. Major elements in K-feldspars and muscovites were analysed. Barren pegmatites are found to contain lowest concentration of Rb and highest values of K/Rb ratio. MS pegmatites, BC pegmatites and LU pegmatites, in order have higher and lower values of Rb and K/Rb ratio plot. The distribution pattern of Pb, Cu, Zn, Ni, Co and Cr is however, not systematic.

------, GEOCHEMISTRY MINERALOGY, SOIL, REH, U.P. ALIGARH.

89. Ansari (Mohd. Ajmal). Mineralogy and Geochemistry of 'REH' soil in some parts of U.P. Deptt.of Geology. 1987. ix, 261 l. ill. References : 241 - 61 l. Supervisor : Noman Ghani.

Aligarh lies on one of the worst affected 'Usar' belts of U.P., is selected for detailed investigation mainly the mineraolgical and geochemical aspects. The soils of Aligarh do contain clay minerals, like, illite, chlorite, virmicnlite, kaolinite. Calcite is a common constituent of the 'Reh'. The soil at Tappal can be classified as highly saline - alkaline on the basis of Ph, clay content, CEC, SAR, ESP and high HCO_3 and CO_3. The soils at Jawan, Panjipur and Sikandara Rao are alkaline or sodic instead of saline - alkaline. The

soils at Atrauli and Panhethi too are alkaline.

-------, -------, PETROLOGY, BASALT, ANDHRA PRADESH, RAJAMUNDRY.

90. Rao, Chatti Hanumantha. Geochemistry and petrogensis of Deccan basalts around Rajahmundry, A.P., India. Deptt. of Geology. 1990. 183 l. ill. References : 165 - 183 l. Supervisors : K.K.Sharma and Noman Ghani.

Covers the flow characterstics, their nature, types, extent and their association with other rocks of the Rajhamundry basalts area : The textural and mineralogical characterstics, chemical characterstics of RJY basalts, with the help of major, minor and trace elements (including REE) chemistry have been studied. Elemental relationships have been worked out to find out petrogentic aspects, with the help of correlation coefficients. Also studied to reconstruct a tectono-magmatic model for these basalt and to compare them with Deccan basalts.

------, -----, ------, BASIC ROCKS, EAST YAMUNA, U.P., GARWAL, HIMALYA.

91. Mahshar Raza. Geochemistry of basic rocks in parts of Garwall Himalaya, East of Jamuna, U.P. Deptt. of Geology. 1979. 144 l. ill. References : 130 -44 l. Supervisor : Nafeesuddin Ahmad.

Visualizes associated with Chamoli formation of Garwal Group. The author has made an attempt to draw petrological and tectonic conclusions from the composition of the basic volcanic rocks. This study may also form a basis for the construction of a model for the tectonic evolution of this area that may ultimately help to understand the architecture of Himalaya as a whole. The Chamoli Formation of Garwal Group is characterised by basic igneous rocks. Three flows are separated by thick units of massive quartzite having intercalations of shale and limestone.

-----,-----,-----, PANJALTRAPS, JAMMU & KASHMIR, PAHALGAM.

92. Bhat, Mohd.Ismail. Petrology and Geochemistry of the Panjaltraps, Pahalgam, Kashmir. Deptt. of Geology. 1978. vi(Unnumbered) l. ill. Bibliogaphy : Last ten l. (Unnumbered). Supervisor : Syed M.Zainuddin.

Panjal Traps occupy the critical position on the

northern boundry of the Indian plate. The geochemistry of these rocks may prove helpful in resolving many tectonic problems like the depth of magma generation, environment and tectonic set-up of lava eruption in this part of Himalaya during Permo-carboniferous period. The alteration of the Panjal Traps is found to be largely isochemical with the exception of concentration of alkali elements. These rocks are relatively low in Mg O content. The high concentration of Rb and Ba are inferred to be related to alkali metasomatism. Granitic liquids are enriched in Rb and Bs and low in Sr.

------,------,-----, PHOSPHORUS, GENESUS, U.P., DEHRADUN, MUSSOORIE.

93. Farahim Khan, Kr. Geochemistry and gensus of Mussorie phosphorites district Dehradun, U.P. Deptt. of Geology. 1991. xvi, 304 l. ill. References : 219 - 36 l. Supervisor : S.H.Israili.

Spectrochemical analysis of the Mussorie phosphorites reveals the presence of major elements and trace elements. Deposition of phosphate might have occured in an euxinic shallow marine environment aided by slightly alkaline to very weakly acidic medium with restricted circulation in warm and dry palaeoclimatic conditions.

------, -----, -----, SANDS, TECTONIC, QUARTIZITES, INDIA, KARNATAKA, BABABUDAN.

94. Arora, Mukesh. Geology, Geochemistry and Tectonic setting of conglomerates and quartzites of the Bababudan Schist belt, Karnatka nucleous, India. Deptt. of Geology. 1991. x, 311 l. ill.References: 284 - 11 l. Supervisors : S.M.Casshyap and S.M.Naqvi.

Deals the sedimentary constituents of the Bababudan Group exposed in the Bababudan schist belt. Geochemistry of the sedimentary rocks had not been studied in detail. A comprehensive attempt has been made to study the redimentological and geochemical characters of the quatzites and conglomerates of the belt. Modal analysis of the QPC, quatzites and the KCM was carried out to measure different mineral constituent.

------, -----, PETROMINERALOGY, PHOSPHORITE, GUJARAT, PANCHAMAHAL.

95. Syed Rehan Ali. Origin of the precambrain phosphorite deposits of Panchmahal district Gujarat. Deptt. of Geology. 1993. ix. 135 l. ill. Bibliography : 118 -32 l. Supervisor : L.A.K.Rao.

Detailed study of various aspects related to geo-

logical setting, geo-chemistry, petromineralogy and origin of the phosphorite deposits. The various stromatolitic from species identified and recognised resemble to those of collenia columnaris, collenia baicalica, colonnella and kussiella kusiensis. Petromineralogical studies indicate that carbonate apatite (dahllite) is the dominent phosphate mineral with some corbonate hydroxyl- fluorapatite and corbonate hydroxylapatite at places. The scanning electron microscopic study indicates that the mineral apatite form the hexagonal prisms and hexagonal pyramids. Infro red spectral analyses of these phosphorites reveal the presence of structural CO_3 and OH ions in apatite structure.

------, HYDROLOGY, GROUNDWATER, AQUIFER, SUB-BASIN, GANGA-KALI, UTTAR PRADESH, ALIGARH-ETAH.

96. Rashid Umar. Aquifer system and ground-water resources potential of Ganga-Kali sub-basin in parts of Aligarh-Etah districts, U.P. Deptt. of Geology. 1990. ix, 197 l. ill. References : 163 - 77 l. Supervisor : S.Sami Ahmad.

Evaluates the aquifer system and ground water resource potential of the Ganga-Kali sub-basin in parts of Aligarh and Etah districts. The geomorphology, geology,

hydrology, hydrochemistry and water balance studies of the area. Chemical analysis shows that the groundwater from the shallow aquifers is having concentration of heavy toxic trace elements. Concurance and senthesis of hydrogeological, hydrological, hydromorphilogical, hydrometeorological, hydrochemical data was attempted to generate the model for ground water regims of Ganga-Kali sub-basin presents in the present thesis.

-------, ------, ------, U.P., BADAUN, SAHASWAN.

97. Taqveem Ali Khan. Aquifer system and ground water resources potential of Sahaswan sub-division, district Badaun, U.P. Deptt. of Geology. 1993. vi, 124 l. ill. References : 115 -24 l. Supervisor : M. Sami Ahmad.

Provides a data base for the aquifer system in parts of Ganga-Sot sub-basin of Sahaswan sub-division. Applications of remote rensing techniques have helped in delineating various geomorpholigical features. Trace element study shows that the concentration of heavy toxic metals, in the water sample of shallow aquifer, is above the permissible limit which may have an adverse effect on the inhabitants health.

-----, ----, -----, YAMUNA-RIVER, ALIGARH, MATHURA.

98. Nurul Hasan. Groundwater assessment and water quality status in parts of Yamuna river sub-basin of Aligarh-Mathura district, U.P.,India. Deptt. of Geology. 1993. xi, 297 l. ill. References : 220 - 40 l. Supervisor : Shadab Khursheed.

Comprises evaluation of the aquifer system, their geometry and groundwater resource potential and water quality in parts of Yamuna-Karwan river sub-basin of Aligarh-Mathura districts. Covers the different aspect, like, establish hydrological parameters of aquifers like transmissivity, storativity and hydraulic conductivity. Studies hydrochemistry of groundwater and surface water bodies in the area and evoluate the groundwater resources of the basin and to demarcate areas for further groundwater development. Trace elements studies reveal that the concentration of heavy toxic metals (Fe, Cr, Pb and Cd) in the shallow aquifers is more than the permissible limits which may entail various health hazards to the users.

-----, PETROLOGY, CARBONATE ROCKS, NARMADA BASIN, MADHYA PRADESH, ZEERABAD.

99. Dabeer Ahmad Khan. Cretaceous sedimentary facies of Narmada basin with special reference to carbonate rocks, Zeerabad - Jobat area, Madhya Pradesh. Deptt. of Geology. 1991. vii, 144 l. ill. References : 131 - 39 l. Supervisor : Khursheed Akhtar.

Facies analysis and construction of depositional model, with special reference to cerbonate rocks of the Zeerabad area. Petrography, petrofacies and dispersal patterns of the Nimar sand stone were studied for the purpose of understanding the overall depositional milieu of the clastic rocks. Sixterrigenous clastic facies were identified in the Nimar Sandstone. Depositions of the basal Nimar sandstone in tidally influenced channels indicates the onset of Albian-cenomanian transgression in the basin.

------, -----, CRYSTAL, U.P., GARWAL HIMALYA, BHILLANGA VALLEY.

100. Rafikul Islam. Structure, metamorphism and petrogenesis and Garwal Group rocks of Bhillang valley. Garwal Himalaya. Deptt.of Geology. 1986. 165 l. ill. References : 166 -74 l. Supervisors :V.C.Thakur & V.K.Srivastava.

Studies the structure, metamorphism and petrogenesis

of the metabasics, granites and metasedimenturies rocks of the Bhilangna valley in the Garhwal Himalaya through field and laboratory studies. The Silicon, Aluminium and total Iron were determined using spectrophotometer, and Calcium and Magnesium were estimated by EDTA titration method, Systronics was used for determining Sodium and Potasium and titration of $K_2 Cr_2 O_7$ method was used for Iron(Ferous). The trace elements were estimated using Atomic Absorption Spectrophotometer. The field and geochemical studies of the granitic rocks.

-----, -----, GRANITE, MASSIF, BUNDEL KHAND, GEOCHEMICAL, INDIA, U.P., JHANSI, LALITPUR.

101. Mondal, Md. Erfan Ali. Petrological and Geochemical study of the granitic rocks of Bundel Khan massif in the Jhansi,Lalitpur area, U.P., India. Deptt. of Geology. 1995. viii, 146 l. ill. References : 133 -46 l. Supervisor : Syed M. Zainuddin.

Covers the geochemistry of spatially distributed granitoids with a view to understand the maturity trends. This work also takes into account the mafic magmatic enclaves which are very widespread within the massif of Jhansi and Lalitpur towns. Determines the nature and

origin of the granitoid and the basement complex. Geochemical characterstics of temporally and spatially distributed granitoids of the massif were correlated.

-------, ------, HYDROLOGY, POLLUTION, SOIL, WATER, RIVERS, GANGA & YAMUNA, UTTAR PRADESH, WESTERN.

102. Israili, Abdul Wahid. Metal contents in soil sediments and associated water in some river basin of Western Uttar Pradesh. Deptt. of Geology. 1986. 391 l. ill. References : 291 - 1 l. Supervisor : S.H. Israili.

Assessments and causes of environmental pollutional intensity due to dispersion of metal contents in water and associated soil. The major water and soil pollution problem in the region is mainly due to highly toxic trace metals which are being discharged as wastes from various industries and other indiseriminate disposal. Periodic geochemical study of various trace metals and actions in soil sediments and associated surface and subsurface water bodies of this region is of this region is of prime importance in order to prevent and minimise the forth-coming pollutional hazards in the area studied.

------, ------, MARINE CARBONATE, RECENT CORALS effect of CLIMATE, ISLANDS, LAKSHDWEEP GROUP.

103. Naqvi, S.Ali Shafi. Geochemistry of recent corals from Lakshadweep group of Islands and its implications to the past climate. Deptt. of Geology. 1991. x, 110 l. ill. References : 11 -28 l. Supervisors : R.R.Nairand M. Raza.

Coral chemistry is controlled by water mass composition, geochemical cycles of certain elements, the effects of availability of light, rainfall conditions, sea water temperature etc. Autoradiography and X-radiography were used for finding out the oral growth rates. Geochemical and mineralogical studies have been carried out on Porites species of different lagoons of Lakshadweep and the past climatic signals have been traced from them. Scanning electron microscopy was carried out on coral slabs to investigate the detired material input into the corals. X-ray differaction studies have revealed very minor quantities of low Mg calcite.

-----, -----, METAMORPHIC, STRATIGRAPHY, PROTEROZOIC, DEBARI GROUP, RAJASTHAN, UDAIPUR, JAISAMAND.

104. Syed Ahmad Ali. Geology of the depari group with particular reference to structural fabric in Jaisamand Sector, Udaipur, district, Rajasthan. Deptt. of Geology. 1986. ix, 202 l. ill. Bibliography : 184 - 94 l. Supervisor : Iqballuddin.

The present study has brought out that the conglomerate, arkose and quartzarenite sequence exposed around Jaismand stratigrophically from past of the basal sequence of Aravalli Supergroup, resting over the pre-Aravalli gneisses and schists with a first order erosional unconformity. The Debari sedimentation took place post-technico to Bhilwara. Geological cycle and heralded the dawn of the proterozoic sedimentation in north-western Indian shield.

------, -----, SANDS, BEACH, FORMINIFERAL, INDIA, WESTERN

105. Rajiv Nigam. Study of recent forminifera from the sandy beaches of Western India. Deptt.of Geology. 1981. 309 l. ill. References : 256- 86 l. Supervisors : S.N.Bhalla.

The present work is the detailed study carried out on various aspects of recent forminifera from sandy

beaches of Western India - 13 Well-exposed beaches from Bombay to Kanniya Kumari dotting the west coast of India. The systematic part of the forminiferal study, effects of pollution, (atitudine) variations and affinities of forminifera are concern of the present study. This work observs that total forminiferal number and total species number decrences with the decrease in latitude. A-Q-mode cluster analysis technique was applied to distribution data of 76 species from 17 beeches. Aciolic pollution causing cutching of foraminiferal tests has been observed in case of Sangomukham beach assemblage.

-----, -----, SANDSTONE, CRETACEOUS, FACIES ANALYSIS, DIAGENESIS, GUJARAT.

106. Abdul Hasnat Masood Ahmad. Facies analysis, sedimentation and diagencies of cretaceous sandstones of North-Eastern, Gujarat. Deptt. of Geology. 1988. ix, 193 l. ill. References : 184 - 96 l. Supervisor: Khursheed Akhtar.

Reconstructing the sedimentation history and facies analysis of sandstone units and some diagenetic aspects of the sandstones, such as compaction and cementation. The textural study included grain size analysis and estimation of their roundness by powers' method. The recognition of tidal environment and processes is based on

criteria such as waxing and waning currents.

------, ------, SEDIMENTARY, LOWER VINDHYAN, RAJASTHAN, GHADESAR-NIMBAHERA.

107. Mathur, Naresh Kumar. Pattern of sedimentation of the lower vindhyan Sequence in the Bhadesar-Nimbahera area, Rajasthan. Deptt. of Geology. 1995. 335 l.ill. Bibliography : 277-311 l. Supervisor :B.D.Bhardwaj.

Deals with four lower most sedimentary groups of lower Vindhyan Supergroup namely Satola, Sand, Lasrawan and Khorip. In field study each out crop was examined in detail for various sedimentary facies and primary features and appropriate measurements recorded and data collected including samples for petrographic study. Deals with stratigraphy, lithofacies, paleoflow analysis, textural and mineralogical composition of the middle proterozoic rocks and aims to determine paleoflow and paleoscope,provenance, depositinal history and paleogeography of the sediments in the given area.

-------, -----, SEDIMENTATION, PALEOGRAPHY, MESOZOIC, ROCKS, GUJRAT, SAURASTRA, GONDWANA.

108. Mohammad Aslam. Sedimentation and palcography of Mesozoic Gondwana rocks. Saurashtra, Gujaraj. Deptt. of Geology. 1987 xii, 212 l. ill. Bibliography : 179 - 91 l. Supervisor : S.M.Casshyap.

Investigates basin analysis, depositional model and paleography of the Mesozoic rocks in of the three coastal Gondwana basin, Surendra-nagar- Wankaner in Saurashtra. Examines the sedimentalogy and paleography of these rocks. The integrated results from facies analysis, paleoflow and paleordrainage, texture and petrography should provide adequate evidence for reconstructing the sedimentation history, shoreline, configeration and paleogeography during the deposition of Mesozoic rocks of Saurashtra area.

-----, -----, -----, PALEOZOIC, FACIES ANALYSIS, INDIA, M.P., KORBA, SON-GONDWANA.

109. Abrar Ahmad. Facies analysis and redimentation trends of late paleozoic Talchir sediments in Son-Gondwana belt north of Korba east-central India. Deptt. of Geology. 1984. xi, 212 l. ill.Bibliography :202 -12 l. Supervisor : V.K.Srivastava.

Talchir sediments of Korba and Hasdo-Arand

coalfields are the subject matter of the present study and have been investigated in respect of their litho-facies, petrography palaeodrainage patterns, provenance, basin geomorphology and depositional environments. The petrographic study of the diamictite units and sand stones of Talchir Formation provides valuable information regarding their mode of formation.

-----, ------, ------, STRATIGRAPHY, RAJAHAN, WESTERN, VINDHYANS.

110. Ghauri, Khan Khalid. Sedimentation and stratigraphy of Vindhyans of W.Rajasthan. Deptt.of Geology. 1979. v, 222 l. ill. Reference : 168 - 93 l. Supervisor: Sajjad Husain Israili.

The rocks belonging to Vindhyan supergroup were deposited in the Western Rajasthan Besin, during proterozoic times uncomformably over the older Aravali and associated rocks. Vindhyan sediments are formarly divisible into two formations namely Jodhpur sand stone and Jodhpur lime stone in the ascending order. The fluvial current system that flowed across the basin persistantly from south east to north west which evidently remained almost unchanged throughout the deposition of the whole sequence.

-----, -----, -----, SUPER GROUP, M.P., GWALIOR

111. Ansari, Inayatur Rehman. Petrography and sedimentation trends of Gwalior super group around Gwalior, M.P. Deptt. of Geology. 1986. 209 l. ill. References : 186 - 209 l. Supervisor : Khan Khalid Ghauri.

Rocks of the Gwalior 'System' would not suggest any separation from the Bijawars still the latter rocks have apparently been extensively studied faced much critical observation and well understood. The present study is precisely based on the sedimentary characters of rocks including primary structure, lithology, lateral and vertical variations and geometry of the Gwalior sediments. This study also helps to reconstruct partially the probable palaeogeography and dispersal pattern of Gwalior sediments during the deposition.

----, ----, SHELF, ARAVALLI, RAJASTHAN, UDAIPUR, UMRASECTOR.

112. Noor Mohammad. Geology of the Aravalli shelf with particular reference to its structural fabrics in "Umra Sector", Udaipur district, (Rajasthan). Deptt. of Geology 1987. xi, 211 l. ill. References : 186 - 204 l. Supervisor : Iqbalududdin.

Presents the basic data on lithology, structure, metamorphism and magmatism of the Debari rocks deposited

in the shadow of Chenda Craton (Lasaria Plateau). Directs to evaluate the Geology of the Aravalli Shelf with particular reference to deformational history as mainfested by the classic strain in the basal sequence of the Proterozoic rocks in Umra Sector, Udaipur district. Petrographic studies were mainly carried out to interpret the P and T levels and mineral paragenesis in a polyphase metamorphic regime. Geotectonic model of the present investigation has been concieved by synthesis of the data generated on stratigraphy, sedimentation and metamorphic events of the area.

-----, -----, STRATIGRAPHY , RAJASTHAN, VINDHYAN, BHILWARA, CHITTORGARH.

113. Farooqui, Mohd. Saleem. Geology of Vindhyan supergroup in part of Chittorgarh and Bhilwara district (Rajasthan) with particular reference to structural evolution of the great boundary fault. Deptt. of Geology. 1987. x, 99 l. ill. References : 88 - 99 l. Supervisor : Iqballuddin.

Photogeologically mapped, photogeophysical and photogeophysical and model deformation studies are carried out, together with detailed laboratory investigations and

ground truth collection. Using conventional techniques of ground surveys, supplemented by remote sensing applications, laboratory investigations and model deformation studies. Between Chittorgarh and Barundni, the great Great Boundry Fault has been picked up as thrust occuring as decollement over the Berach Granite.

-------, ------, VOLCANIC ROCKS, SUPERGROUP, DONAGRAPH, GEOCHEMISTRY, BHANDARA TRIANGLE, INDIA, CENTRAL.

114. Jafri, Syed Safi Husain. Geochemistry of volcanic rock from a part of Dongarh supergroup, east of Bhandara Triangle. Deptt. of Geology. 1981. 183 l. ill. References : 162 - 83 l. Supervisor : S.M. Naqvi and Nafeesuddin Ahmad.

Studies the problem of secular compositional variation in basic magmatism through time at the same place. Sample of rhyolites granites and basic volcanics have been collected for laboratory investigation. Major, minor and trace elements have been determined and petrological studies were carried out for rocks. The composition and petrogenesis of the acidic rocks from this area have also been investigated.

------, STRATIGRAPHY, JURRASSIC, FORMINIFERAL, GUJRAT, KUTCH, JUMARA AREA.

115. Gaur, K.N. Study of Jurassic foraminiferra from Jumara area, Kutch. Deptt. of Geology. 1988. viii, 209 l. ill. References : 186 - 204 l. Supervisor: S.N.Bhalla.

Deals with a well-developed Jurassic sequence exposed at the Jumara Hills, near Jumara village in the western part of Kutch mainland and it is the first detailed account of Jurassic foraminifera recovered from these sediments. Interprets the depositional environment of the studied Jurassic sequence on the basis of foraminiferal, lithological and field data.

-----, -----, -----, MEGAFOSSILS, FORMINIFERA, GUJRAT, KUTCH, JHURIO-HILL.

116. Abu Talib. Study of Jurrassic forminigera from Jhurio-hill, Kutch. Deptt. of Geology. 1984. 191 l. ill. References : 163 - 91 l. Supervisor : S.N. Bhalla.

Comprises fifty-three species of which two are new. The forminiferal assemblage of the Jhurco hill proved to be of little help for interpreting the depositional environment of the present sediment. It compares

well with the forminiferal microfanna described from other areas of Kutch and Rajasthan as well as with those recorded from Afghanistan, Iran, Egypt and Somalia.

MATHEMATICS, ALGEBRA and GEOMETRY, RELATIVITY, CURVATURE, TENSOR, ELECTROMAGNETIC, VOCTOR.

117. Zafar Ahsan. Studies on relation in general relativity. Deptt. of Mathematics. 1978 (v) 91 l. Bibliography : 85 - 91 l. Supervisor : S. Izhar Husain.

Studies on algebric and geometric properties of the Riemann curvature tensor and also the electromagnetic field tensor, with a view of characterizing and studying the gravitational as well as electromagnetic radiation in general relativity. The vanishing of certain invarients (without the curvature tensor being zero) characterize the presence of the gravitational radiation. Characterizing the null electromagnetic field on a V_4. The Nijenhuis tensor of the (F, g, r, s) - structure on a space-time V_4 plays a very natural role in the study of electromagnetic radiation in general relativity.

------, ------, INTEGERS, PARACONTACT, MANIFOLDS, VECTOR.

118. Abdul Ghaffar Khan. Studies on almost Paracontact manifolds. Deptt. of Mathematics. 1982. 53 l. Bibliography : (i)-(iii) l. Supervisor: S.Izhar Husain.

Relation between almost paracontact and almost

product structure introducing almost product structure on the product manifold of two almost paracontact manifolds and discussiong their intergrability conditions. Deals with automorphism groups of almost paracontact manifolds. In view of anology between almost paracontact and almost contact strucrure the notion of automorphism of almost paracontact structure has been introduced studying some of its properties.

------, -----, POLYNOMIALS.

119. Aijaz Ahmad Khan. On generalized polars of abstract hemogeneous polynemials. Deptt. of Mathematics. 1981. (xi) 103 l. Bibliography : 100 -03 l. Supervisor : Neyamat Zaheer.

Studies certain aspects of the theory of generalised polars and obtains solution to a general problem. The factor polynominals, occuring in the expression for generalized polar, have been divided into three groups eachof one is pressigned a circular are containing the null-sets of all polynominal. belonging to that group. The main theorems have been applied to obtain more general formulations in terms of algebra - valued a.h.p.s. It also deals with sufficiency conditions for the non-vanishing of generalized polars with arbitrary weight,

where, in general, no two factor polynominals are required to have some circular are in which their null-sets must lie.

------, ------, VARIATION, QUASI, INEQUALITY.

120. Shamshad Husain. On variational and quasi-variational inequalities. Deptt. of Mathematics. 1993. iii, 68 l. Bibliography : 62 - 8 l. Supervisor : Abdul Hasan Siddiqui.

The study of variational and quasivariational inequalities. Variational and quasivariational inequalities are very powerful tools of the current mathematical technology and have become a rich source of inspiration for scientists and engineers because their diverse forms serve as mathematical models to a large number of interisting phenomena occuring in various important fields. The numerical solutions of variational and quasivariational inequalities in terms of nonlinear operators are still unexplored fields.

--------, GEOMERTY, FIMITE, INFINITE, MODULES.

121. Ansari, Abdul Halim. Purity and its allied concepts in some special models. Deptt. of Mathematics 1980.(vi),82 l. Bibliography:(i)-(v) l. Supervisor : M.Zubair Khan.

Generalizes the fundamental concepts and results

of torsion abelian groups. On account of their importance the need is felt to introduce from S_2 -modules. h-pure-complete modules and complement sub-modules in S_2 - modules have been dealt with and a necessary and sufficient conditions for an element of an S_2 -moudles to be embeddable in a uniform summ and of finite length has been obtained. It is proved that if M is an S_2 - module with elements of infinite height and finite height. Then m possesser a non-trivial decomposition. h - dense subsock and large sub-modules proving that an h - heat submodule of an 53 module supported by an h-dense subsock is h - pure. A high submodule of a large submodule is closed in a high submodule of the module itself. It obtains a character in a high submodule of the module itself. It obtains a characterization of fair module and proves that if M is an S_3 - module then then M is fair module if and only if M is either h - divisible or is a direct sum of universal modules of length n and n plus 1 for some n.

------, ------, ABELIAN, GROUP, HIGHEXTENSION, PURE, TORISON GROUP.

122. Arif Mashood. Group of neat & pure high extension of some abelian graphs.Deptt. of Mathematics. 1982. v, 105 l. Bibliography :(i)-(iv) l.Supervisor : S. Izhar Husain.

Neat and pure-high extensions and the groups

Next (B,A) and next B_p (B,A) for sum abelian groups A and B. All groups which have been considered are abelian. Exact sequences, commulative diagrams, pure-high and neat-high extensions are also defined. It is fined that if B is a torsion group then the behaviour of the group Hext (B,A) is almost the same as that of Next (C,A) for any group C. But if A is torsion free group and B is a torsion group then the two groups Next (B,A) and Next (B,A) do not behave in a similar way. If both groups A and B are torsion groups, the groups Next (B,A) and Hext p (B,A) have similar properties. The subsgroups of Next (B,A) in case A is a direct sum of cyclic groups of prime power order have been constructed and the properties of these subgroups and their quotient groups have been studied. Conditions on A and B under which Next (B,A) = 0 and Hext p (B,A) = 0 have been deduced and discussed.

-------, ------, HYPER.

123. Banda Khan. Contribution of the study of triple and quadruple Hyper - geometric functions. Deptt. of Mathematics. 1981. vi, 141 l. Bibliography : 130 - 39 l. Supervisor : M.A.Pathan.

Interconnection of the general, double and triple

and quadruple hyper-geometric functions are expressed. Typical transformations reduction formulas of hypergeometric functions of a rather different character. Some well known quadratic transformations of cause hypergeometric series and reduction formula of F_4 as special cases of the results. The eypansions K_5, K_9, K_{10} , K_{12} and K_{13} are obtained.

--------, -------, MULTIVARIATE.

124. Faseehuddin Khan. On transformations reductions and summations of multivariatehypergeometric functions. Deppt. of Mathematics. 1983. vii, 114 l. Bibliography : 101 -12 l. Supervisor : M.A.Pathan.

Author explores the interconnection of the general, double, triple and quadruple functions. It incorporates a number of finite double sums of kample de Ferict's hypergeometric functions of two variables $F_{m:r:5}^{p:9:r}$ and is basically aimed to understand the work on summation of special functions. Using the method of series manipulation, some transformation and reduction of generalized Horn function H_3 of three variables given by Exton is obtained.

-----, -----, PARACONTACT, MANIFOLDS, CONNEXION, DIMENSION.

125. Ghaffar Farzadi. Studies on almost paracontact manifolds. Deptt. of Mathematics. 1979 (iii) 79 l. References : 77- 9 l. Supervisor : S.Izhar Husain.

Obtains the criterion under which this manifold admits a symmetric (ϕ, ξ, η) - connexion. Employing the technique of C.J.Hsu and shows that almost paracontact manifolds carry a natural 3-π - structure. Using the theory of r-π - structures. Considers the problem of determining most general (ϕ, ξ, η) - connexions on a almost paracontact manifolds. Also considers the bundle of linear frames over an almost paracontact manifold and study the linear connexions defines on this bundle.

-------, -------, 2-NORMED SPACES.

126. Rizvi, Syed Mohd. On some aspects of 2-normed spaces. Deptt. of Mathematics. 1983. 91 l. Bibliography : 81 - 92 l. Supervisor : Abdul Hasan Siddiqi.

2-Semi-inner product spaces which has been subsequently used to obtain some interacting results. Concepts of continuty, boundedness and adjoint have been studied as they apply to linear operators defined

an 2-Inner Product Spaces. Weak - 2 norms and their properties comes in there after including characterisitcations of strict eonvexity in terms of 2-Semi-inner products. The concept of uniformly convex 2-normed spaces are dealt with the concepts of 2-m spaces have proved to be very useful for studying the geometry of suchspaces, and new characteristics of uniform convexity for a 2 - nl space is given.

--------, TRIGONOMETRY, INTEGERS.

127. Sabir Hasan. Some aspects of integrability of trigonometric series. Deptt. of Mathematics. 1984. 62 l. Bibliography : 58-62 l. Supervisor : Sarfraz Umar.

The theory of integrability of trigonometric series is a recent origin. This work consist of a few conventions introducing the nature and giving the necessary difinitions and notions used in this text and surveys the known results against the background of which the problems considered subsequently. Deals with Rees Stanogivies and establishes and establishes a results by taking super multiplicative function. If also studies the transformation of fourier series of L_p and L $\emptyset$ classes proving a theorem on resulting bound which generalizes a theorem of Rees and ends with problem concerning integral module of continuety of Fourier Series.

-------, -------, --------, LEMMA.

128. Ansari, Mohd. Sadiq. On certain problems in the theory of Integrability of Trigonometrics Series. Deptt. of Mathematics. 1980. 94 l. Bibliography: 86 - 94 l. Supervisor : Sarfraz Umar.

Theorems of different characters have been proved. The results are conerned with the behaviour of the Fourier Coefficients. Studies of the integrability of functions represented by trigonometric series. The study of convergence of Rees-Stanojevic sums f_n (X) in the metric space L and also study of integrability of functions represented by Power Series. The fourier coefficient of a function belonging to L (p) class. Weakens the hypothesis that a O_n a theorem E to a condition that n a should be monotonic for some non-negative integer B and also for weighted l^p spaces. This theorem is proved by using some Lemma.

---------, VARIATIONAL, FRICTION, NUMERICAL.

129. Rais Ahmad. Numerical analysis of variational inequalities in modelling of contact problems with friction. Deptt. of Mathematics. 1992. 94 l. References : 87-94 l. Supervisor :Abdul Hasan Siddiqi.

Numberical solution of variational inequalities in

terms of nonlinear operators is still an explored field. Deals with strongly nonlinear variational inequalities where an important existence theorem has been proved. Contains complementarity theorem related to strongly nonlinear variational inequality in the setting of semi-inner product spaces. Vector veriational like inequalities have been investigated. Algorithms have been developed to obtain the approximate solutions of generalized complementarity problems and author succeeded in demonstrating that the approximate solution converges to the exact solution.

PHYSICS, ELECTRONIC,RANDOM SIGNAL, SPECTROSCOPY,MOSSBAUR

130. Rajmani Singh,P. On the Spectral analysis and coherent detection of random signals in the mossbaur resonance. Deptt of Physics. 198 l. viii, 88 l. References: 84-87 l. Supervisor: K. Rama Reddy.

The theoretical and experimental aspects of detecting 'Stochastic signals' related to the Mossbauer resonance explore the frontiers of hyperfine field synthesis for enhancing the ultimate precision and sensitivity and this investigation has led to the possibilities of developing the fourier transform spectroscopy and the Dual Doppler Modulation (DDM) method in the field of Mossbauer Spectroscopy. The DDM method of signal analysis demonstrate the very high consitivity of the Mossbauer resonance.

----, IONS, CARBON, HYDROGEN, INTERSTELLAR, HIIREGION

131. Abdul Qaiyum. Investigation of the partially ionised interstellar medium associated with the Hii regions, Deptt. of Physics. 1983, 144 l. References: 135-43 l. Supervisor: S.M. Razaullah Ansari.

Explaines the intensities of radiorecambination lines of partially ionised hydrogen, carbon, and of other elements from NGC 2024, Orion A and W3 is reported. Details

of the reaction Cl II $+H_2$ HCl II+H and photo-dissociation HCL II+n) H II+Cl, as a source for the production of HII in the interstellar clouds. Chemical balance is set up to evaluate the position dependent electron density of ionised species from which line emissions are considered.

----, LIGHT, SPECTROSCOPY, MOLECULES

132. Ansari, Abdul Khaliq, Spectroscopic studies of polyatomic molecules. Deptt. of Physics, 1979, 256 l. References; 28, 56-8, 83-4, 105-6,121, 185-7,234, 249-50 l. Supervisor : P.K. Verma.

The laser Raman and infrared spectra of 1-fluero 2; 4- dinitrobenzene, p-fluoroacetophenone, benzyl benzoate, benzoic aid, phthelic acid and Salicylic acidand infrared spectra of methyl benzoate, o-methylaniline, m-methylaniline, N-methylaniline and di-methylaniline, Vibrational frequencies observed in the laser Raman Spectra have been correlated with those obtained in the infrared spectra.

133. Shabbir R. Ahmad. Spectroscopic Studies of polyatomic molecules Deptt. of Physics, 1990.220 l. ill. References 42-4,78-9,95,114-6,129-30,160-1, 201-4,216,220 l. Supervisor: P.K. Verma.

The infrared and Raman Spectra of isomeric iodenitrobenzenes were recorded and observed. Roman Spectra of molecules were recorded in solid phase in the region 80-4000 cm^{-1} using 4880 A line of Agron-ion laser as a source of excitation. Discusses the laser Raman and infrared spectra of 3,5-dinitrobenzoic acid. Describes the spectroscopic studies of 3,4,5-trimthoxybenzaldehyde. Treats vibrationtional spectra of 2,4,6-trifluoroamiline. The values of thermodynamic quantities, calculated at different temperatures, are plotted as function of temperature.

134. Syed Tariq. Spectroscopic studies of polyatomic molecules, Deptt. of Physics, 1083, vi, 232 l. References; 229-31 l. Supervisor: P.K. Verma.

Spectroscopic studies of some polyatomic molecules are reported. Describes the laser Raman, infrared and far infrared spectra of vanillin. All the fundamental vibrations in each of the three molecule are identified. The p-hydroxybenzoic acid molecule is a disubstituted benzene derivative with COOH and OH groups substituted at 1 and 4 position of the ring.

135. Mathew, Samuel. Vibrational spectra of some polyatomic molecules Deptt. of Physics, 1993, 216 l. References: 32-4, 57-60,78-80,114-6, 135-8,157-9,178-9,213-4 l. Supervisor : P.K. Verma.

Vibrational spectroscopy of polyatomic molecules observed in the infrared and far-infrared region of the electromagnetic radiation and laser Raman spectra of polyatomic molecules. In infrared and far-infrared spectra of polyatomic molecules will give the information about the various fundamental vibrational frequencies associated with different normal modes of vibrations of the molecule. The absence of some particular molecular vibration in laser Raman Spectrum indicates the prohibition of that vibration due to the selection rule followed in Raman spectrum. The vibrational analysis of p-introacetanilide and the calculation of thermodynamic quantities using the fundamental frequencies. FT-infrared and laser Raman spectra of sulphanilic acid were recorded and the observed bands are assigned in terms of fundamental, combination and different frequencies, assuming the molecule belonging to C_s point group. The infared and Raman spectra of the molecule

6-azauracil were recorded and the observed bands are assigned in terms of fundamental and combination vibration.

----,----,----, NIOBIUM

136. Shujauddin,Q. Spectral study of the niobium spectra: Nb III,V,VII, Deptt. of Physics,1982,105 l.References: 23,28,32,42-5,52 l.Supervisor: M.S.Z.Chaghtai.

Analyses resonance transitions for nine spectra of Zr, Nb and Mo, that are isoelectronic with Kr I, Br I and Se I- five of them, with the help of spectrograms. The source could produce spectra of about nine time ionized atoms of biobium (Nb 1-x) at minimum inductance. Four equally spaced known lines are chosen on each spectrum to determine consonants, then wave-length of all other lines on that spectrogram are calculated.

----,----,----, RAMAN SCATTERING, SERS

137. Shaikh, Mohd Ekram Ali. Surface enhanced Raman Scattering (SERS) studies of some pyridine derivates. Deptt. of Physics, 1901, v, 1441.References: 8, 21,30, 52-3, 71,92-4,109-10,122, 137-8 l. Supervisor : Y. Kumar.

The determination and understanding of the sources of surface-enhanced Raman scattering (SERS) effect. A strong enhancement will be observed when the particle size remain, smaller than the exctting wavelength. The SERS of some pyradine derivatives have been studied using silver sol technique. The derivatives having their substituents at the 2- or 3- positions are being absorbed in the 'standing-up' orientation whereas the derivatives having the substituents at 4-position are getting absorbed on 'flat' orientation. Ring breathing and C-C- bending modes are shifting towards the higher frequency for standing up orientation and towards the lower frequency for flat orientation of the absorbed molecules.

----,-----, RATS, COSMIC, MAGNETIC CLOUD, INERPLANETARY

138. Yadav, Nathu Ram. Study of effects of interplanetary phenomena on cosmic ray variations. Deptt. of Physics. 1987, 138 l. References : 122-38 l. Supervisor : R.S. Yadav.

The effects of interplanetary phenomena on cosmic ray variations. The cosmic ray idensity variation near the current sheet, the effects of magnetic clouds and interplanetary shocks on cosmic ray intensity variations. The Calculates anistropies during the passage of these magnetic clouds and interplanetary shocks on the Earth.

cosmic rays. The results are discussed in relation to north-south asymmetry of the solar activity and the solar wind. The possibility of the displacement of current sheet separating the two hemispheres of opposite polarity.

----,----,----, GAMMA, INTERACTIONS.

141. Gupta, Gagan, Coherent Gamma-rays and a theoretical study of some of their effects. Deptt. of Physics, 1991, vi, 147 l. References:7,12-4, 25-7, 58-72,89-6, 91-2,125-6,145 l. Supervisor: Javed Husain.

Application of the x-ray and gamma-ray laser and the interaction of charges and dipoles with gamma-ray laser. Discuss the ideas for the further development of shorter wavelength x-ray emission. Mentions a few proposed application of x-ray lasers . Their feasibilities are predicted either through nuclear transitions or through electron and positron beams . Atomic transitions may not lead to the generation of coherent radiations in gamma-ray region and nuclear transitions seem more promising. Anger effect on atomic and internal conversion in nuclear transitions, must not dominate the transitions. The nuclear superradiance

process is supposed to be a viable lasing process in the case of gamma-ray laser. Deals with the possibility of coherant gamma-rays through an inverse compton effect in an interfering geometry of two laser beams. The problem of interaction of an electron with a gamma-ray laser beam. A short generalized treatment for the interaction of an electric dipole with a plane electromagnetic wave gamma-ray laser beam of a finite diameter. It is found that the dipole may either be uneffected or can rotate without affecting its translational motion or may rotate with either accelerated or decelerated motion.

----, MAGNETISM, ELECTRON, RESONANCE, CRISTAL

142. Agarwal, O.P. Electron paramagnetic resonance studies of Mn^{2+} and VO^{2+} in some diamagnetic single crystals. Deptt. of Physics, 1984. ix, 116 l. References:10, 32-3,97,58,75,94,110,116 l. Supervisor :R. Dayal.

Structure, nature of chemical bonds within a molecule and fine, hyperfine and superfine interactions of the paramagnetic complexes diluted with the diamagnetic

host Results of optical absorption and EPR study of the paramagnetic impurity ion in the diamagnetic host can be correlated to obtain useful information about the energy levels and bonding of the unpaired electron The EPR and optical study of vanady (ion doped in some diamagnetic hosts having XO_4 (x=S,P) group and EPR study of Mn^{2+} doped in Rb_2SO_4 single crystal.

----, NUCLEAR, ALPHA, INTERMEDIARIES

143. Alvi, Mohd Akhtar. Elastic alpha-nucleus scattering at intermediate energies Deptt.of Physics, 1982,116 l. References: 114-16 l. Supervisor : Israr Ahmad.

Theoretical study of a nucleus elastic scattering mainly at intermediate energies. The calculation of the scattering in the rigid-projectile model proceeds along the same lines as the calculation of N-nucleus scattering. A comprison of the predictions of the rigid-projectile model for α - ^{12}C and α -Ca scatterings[15-197] at 1.37 GeV shows that this model provides a great improvement over the optical limit approximation.

----,----,----,LIGHT, CYCLOTRON, REACTIONS

144. Rizvi, Israr Ahmad. Study of some Alpha induced reactions at the cyelotron energies. Deptt. of Physics 1988. 196 l. References: 11 l, 44-8, 65-8, 156-8,192-5 l. Supervisor: A.K. Chaubey.

Excitation functions for -induced reactions have been experimentally measured in the energy range from 7-60 MeV for ninteen reaction covering a relatively wide mass region from 55+209. The stacked for activation technique has been used for the irradiations of target foils. The activity produced in foils was measured using a 100 CC ORTEC Ge(Li) detector, in conjunction with a 45 multichannel and yser. The pre-equilibrium fraction (6_{PE}) of the total reaction cross-section has also been calculated at different energies.

----,----,CARBON, FRACMENTATION .

145. Md. Shakil Ahmad. A study of fragmentation of relativistic carbon-12 in emulsion, Deptt. of Physics, 1989, iii, 155 l. References: 40-9,67,89-90,130-1, 154-5 l. Supervisor: Israr.

Studies the general characteristics of ^{12}C -emulsion collisions at 4.5 A GeV/C. The fragmentation of ^{12}C nuclei in emulsion and the anomalous behaviour

of projectile fragments. A sample of 1250 ^{12}C-emulsion collision at 4.5 GeV/c has been used for this purpose. The comparison yield valuable information about the dynamics of nucleus-nucleus collision. Observes, that Z=2 fragments do not exhibit any anomalous behaviour but Z 3 fragments do exhibits anomalous behaviour, i.e. their intraction mean free path depends upon the distance from the interaction vertey.

----,---- ELECTRON, WAVE, CORRELATIONS

146. Usmani, Qamar Nasir. A study of short range nucleon correlations in light nuclei. Deptt. of Physics, 1979, 112 l. References: 106-12 l. Supervisor : M.Z. Rahman Khan.

Determines nuclear wave-functions and in particular examine their behaviour at short inter-nucleon distances from elastic electron scattering and experiments which involve the one body operator. An also determines the dynamical short range correlations from elestic electron scattering data. Three nuclei, namely ^{4}He, ^{16}O, and Li have been considered. One body density alone is sufficient to distinguish between the shell model and the

correlation aspects of wavefunctions is not effected by the neglect of above effects.

----,----, ENERGY, FOLDING MODEL, BINDING, INTERACTION

147. Mahmood Mian. Hypernuclear binding energies in the folding model. Deptt. of Physics, 1985, 113 l. References: 18-21, 43-9,79-80,93-4,113 l. Supervisor: M. Z. Rahman Khan.

Analyses of the B_Λ data of $^{5}_{\Lambda}$He, p-shell and heavier hypernuclei interms of an effective density dependent N interaction. The effects of various shape of ΛN potentials different forms of density distributions of core nuclei available and different forms of density dependence of ΛN interaction. The study of $^{7}_{\Lambda}$Li in different cluster models. The excited state date of various hypernuclei using density dependent interaction. Re-analyses the B_Λ data with a two-body density independent effect interaction with a view to understanding the possible role of three -body ΛNN forces.

----,----,----, GRAPHITE, INTERACTION

148. Agarwal, Ajay Kumar. Study of high energy interactions in Graphite. Deptt. of Physics. 1978.119 l. References: 110-19 l. Supervisor: M.S. Swami.

Author determine the energy and angle of each gamma rays with respect to the primary. The multiplicity of r-rays were determined. The differential distribution of transverse momentum of the secondary particles in the laboratory system and also the integral distribution of longitudinal momentum in the C.M. System. He also plotted the differential distribution of fractional energy. The different methods of energy estimation of nuclear and electromagnetic cescades are discussed.

----,----, HADRON, COLLISIONS

149. Tufail Ahmad. Some characteristics of high energy Hadron Nucleus Collisions. Deptt. of Physics, 1989. 279 l. References: 164-67 l. Supervisor:Mohamad Shafi.

340 GeV has been used to study the process of multiparticle production. Photographic emulsion has been used as detector. Studies the multiparticle production processes in hadronic collisions. The multiplicity distributions of heavy, grey, black and shower tracks, various moments of N_s-distributions, intercorrelations

between different particle multiplicities, scaling of the multiplicity distribution of shower particles and mean normalized multiplicity etc. The short-short and long-short correlations have also been studies.

----,----,----,DEUTRONS, TRITONS,LIGHT FRAGMENT,ENERGY

150. Afzal Ahmad. Emission of light fragments in high energy hadron nucleus collisiongs. Deptt. of Physics. 1979.ii,162 C. ill. References: 158-61 l. Supervisor: Mohammad Shafi.

This thesis is based on an experimental study carried out to determino various emission characteristics and to investigate the production mechanisms of relatively faster deuterons, tritons and HO^3-nuclei produced in the interactions of 50GeV/C π-meaons with Ag and Br nuclei of nuclear emulsion. The experimental results on the production of fast tritons and He^3-nuclei in 24 GeV/C proton interactions with Ag and Br nuclei in terms of the existing models.

----,----,----, MULTIPARTICLES, INERACTIONS

151. Shakeel Ahmad. Characterstics of Multiparticle and high energy hadronic interactions. Deptt. of Physics. 1986, iv, 173 (References: 10-4,46, 79-5,93-409,137, 163-4. Supervisor: Mohammad Irfan.

Obtains some useful and important information regarding the mechanism of multiparticle production in high energy hadronic interactions. Examines the mechanism of multiparticle production in hadronic interactions at high energies, the experimental values of some important characterstics of these interactions have been compared with their corresponding values predicted by the various theoretical models. A random sample of 873 events with $n_h \geqslant 2$ produced in the interactions of 50 GeV negative pions with emulsion nuclei.

----,----, IONS, FRAGMENTS, CARBON,SILICON,INTERACTIONS

152. Mohammad Tariq. Some Characteristics of projectile fragment produced in interactions of carbon and silicon nuclei at 4.5 A GeV/C in nuclear emulsion. Deptt. of Physics. 1993, 240 l. References:8,61-4, 155-7, 224-7 l. Supervisor : M. Zafar.

An analysis using 701 events of 28 Si-Em and

844 interaction of ^{12}C-Em at 4.5 A GeV/C. Investigates the various characterstics of the interactions of the beams of ^{28}Si and ^{12}C nuclei with the nuclei of nuclear emulsion. Two stacks of BR-2 emulsion exposed to 4.5 A GeV/C carbon and silicon beams have been utilized. Details of the stacks used, the nuclear emulsion its composition, scanning procedures, selection criteria of useful events. Estimates the mean free paths, $\lambda = (9.63 \pm 0.24)$ and (13.78 ± 0.27) cm respectively for ^{28}Si and ^{12}C beam nuclei in emulsion, which are an agreement with the corresponding theoretical values of 9.77 and 13.87 cm calculates by using the formula of Bradt-Peters.

----,----, NEUTRINO, DEUTERON, INTERACTIONS

153. Sarfaraz Ali Khan. Study of Neutrino-Deuteron disintegration induced by natural currents. Deptt. of Physics. 1980. 164 l. ill. References : 155-62 l. Supervisor: S.K. Singh.

Observations of the process at low anti-neutrino energies (5MeV) corresponding tc reacter anti neutrino is a clear evidence for the existence of weak neutral currents in the interactions. The wave functions used for initial deuteron and final dinucleon states. Effects of various form factors in V, A,S, P and T theories on the total cross sections. The effects of interactions on cross Section and nucleon energy correlation function.

----,----, NEUTRON, ALPHA PARTICLE

154. Gautam, Ravindra Prasad, Study of alpha particle and neutron reaction cross-section. Deptt. of Physics, 1986, 210 l . References: 13-6,56-7, 104-5,134-6,170-2, 206-9 l. Supervisor: A.K. Chaubey.

Explores the energy region from few hundred keV to 3.5 MeV. Radiative capture cross-sections for ^{55}Mn and ^{115}Ln isotopes have been measured. The neutrons for this work were produced using Li(p,n)and ^{3}H(p,n) nuclear reactions. The characterstic gamma rays were picked up using a 100 e.c. Ge(Li) detector. Theoretical calculations of these cross-sections were done using computer code FISPRO-II with appropriate value of parameters. These cross-sections measurements is in the formation of shielding material for neutrons emitted from radioactive substances or nuclear reactions. These neutrons are the most hazardous particle for the life of human being. The excitation functions of alpha induced nuclear reaction may give some information about reaction mechanism and nucleosynthesis. The presence of pre-equilibrium in any reaction of this work can be observes high energy tail of the excitation functions.

----,----, ----, ENERGY, REACTION.

155. Ansari, Mohd. Afzal. Study of neutron induced reaction cross-sections at intermediate energies. Deptt. of Physics. 1982. vi, 174 (References:10, 47,138,154,171-4 l. Supervisor: M.L. Sehgal.

The measurement of (n,) cross-sections between 1 MeV and 3 MeV neutron energies for several isotopes. The requisite neutrons in the above energy region were obtained from $T(p,n)^3$ He reaction. The detection efficiency of Ge(Li) detector, irradiation procedure, choice of the standard reaction flux calibration and analysis of errors along with the details of individual measurments have been given.

----,----,----, REACTION

156. Agarwal, Hari Mohan, Investigation of neutron induced reactions. Deptt. of Physics, 1979, 115 l. References: 1,41-3, 64-5,83, 99-100,113-114 l. Supervisor: M.L. Sehgal.

Measures the (n,r) and (n,a) cross-sections in KeV energy region to complete and improve the earlier data. The requisite neutrons in KeV energy region were obtained from the ^3H $(p,n)^3He$ reaction using incident proton beam.

----,----, PION, SCATTERING, GLAUBER THEORY.

157. Nikhat Bano. Some studies in pion-nucleus scattering using Glauber theory. Deptt. of Physics. 1978,88 l. ill. References : 12-9,35,68-9,80,87-8 l. Supervisor: Israr Ahmad.

Applies Glauber multiple scattering theory to analyse the elastic and the 2+ inelastic angular distribution and total cross section data of medium energy pions on ^{12}C using alpha-cluster model and pion-absorption cross section data on ^{12}C and ^{40}Ca in the incident pion momentum range 0.71 to 2.0 Ge V/C. The medium energy π^{12} C data have been analysed using the microscopic alpha cluster model as developed by Brink and the Gaussian Paramoterization for the elementary π-N Scattering amplitude. The present analysis corroborates the findings of high energy electron and proton probes that by for the alpha cluster model is the only simplest model with describes the low lying properties of ^{12}C nucleus in a consistently satisfactory manner.

-----,----, POSITRON, ELECTRON, ENERGY, TRANSMISSION

158. Gitt, Teja Singh . Study of the penetration of phositorns and electrons in different materials. Deptt. of Physics, 1988, 96 l. ill. References: 15-6, 29-30, 57-8,78,96 l Supervisor: A.K. Chaubey.

Presents new experimental data on newly defined 'straggling free practical ' ranges and mass absorption coefficients of positrons and electrons of energy E max lying between 250 KeV to 1.88 MeV in a large number of elemental materials, including the rare earth materials. A new definition of the 'straggling free practical range' attempts have been made to establish the meaning of this range which could account for the salient features of the interaction of positrons and electrons with the atoms of the medium they traverse. There is a difference between the transmission behaviour of positions nd electrons.

----,----, PROTONS, ENERGY, CLASTIC STRUCTURE

159. Zafar Ali Khan. High energy proton scattering and the cluster structure of 'Li and 12c. Deptt. of Physics. 1978, 81 l. References: 78-81 l. Supervisor:Israr Ahmad.

The elastic and the inelestic scattering of intermediate energy protons on ^{12}C and ^{6}Li nuclei in the cluster mode within the framework of Glauber multiple scattering theory. The cluster model gives a fairly good account of p-^{6}Li and p-^{12}C scattering experiments

and that such experiments coupled with more refined analyses could provide useful information on deeper aspects of the structure of target nucleic.

----,----, ----, PIONS, HADRON , ENERGY, INTERACTIONS

160. Abdur Rahim Khan. Study of high energy hadron-nucleus interactions at 24 and 50 GeV/C. Deptt. of Physics 1979, 115 l. References: 13-4, 37, 55,83-5,106 l. Supervisor:Mohammad Shafi.

This thesis is based on a study of the distintegrations produced by 50 Ge V/c and 24 Ge V/C protons, mainly to investigate various emission characterstics of grey pions, protons and light fragments, Energy, momentum, and angular distributions of p,d,t and slow pions have been studied. Average values of kinetic energy of these particles have been determined and their values have been observed to be (93 ± 10), (130 ± 9), (221 ± 12) and (27 ± 6) MeV respectively for p,d, t and slow pions.

161. Ahrar Husain. Some aspects of high energy hadronic collisions. Deptt. of Physics. 1985, 11,127l.References: 9,19,41,59,92-9,115-6 l. Supervisor : Mohammad Shafi.

Deals with a study of multiparticle production processes in high energy hadronic collisions. The study is based on analysis of interactions produced by 24 and 400 GeV/C protons and 50 and 340 GeV/C pions with emulsion nuclei. Various characteristics of grey protons and showers produced in these interactions have been studied. The medium energy, protons emanating from 24 GeV/C protons and 50 GeV/c pions-emulsion interactions have been given. The production of heavy clusters is energy dependent and the present accelerator energies are below the threshold at which heavy cluster may begin to produce.

----,---, TRACK DETECTOR, RADON,CR-39.

162. Abdul Jabbar Khan. Study of Radon and its daughter concentrations in buildings and commonly used materials using CR-39 nuclear track detectors, Deptt. of Physics 1988, 258 l. References:255-58 l. Supervisor: R.K. Tyagi.

The measurement of Radon and its daughters concentration have been done in a large number of buildings of Aligarh using CR-39 nuclear track detector. CR-39 detector is sensitive to all alphaparticle energies

emitted from radon and its daughters and performance of this type of detector was found to be quite satisfactory under various environmental conditions. This study yields significant base line data for radiation protection agencies to ensure the safety measures against the possible radiation hazards of the surrounding population.

----,----, URANIUM, PLASTIC DETECTOR, FISSION TRACKS

163. Bansal, Veena. Studies of fission tracks in plastic detectors and its application for measurement of uranium content in certain metrials of common use. Deptt. of Physics. 1989, 166 l. References:18-21, 54-64, 94-7,123-24, 162-66 l. Supervisor: Rajendra Prasad.

Characterstics of plastic track detectors for the detection of fission fragments and apply the fission track registration technique for the measurement of uranium content in certain materials like water, teas, tubers, drugs and milks etc. The uranium content in samples can be determined by the detection and counting of the fission fragments

resulting from $^{235}U(n,f)$ reaction produced by thermal neutrons. SSNTDs provide a reliable, simple and sensitive method for the detection of fission fragments. The plastic track ditectors can be applied for recording the fission fragments and fission track registration technique using plastic track detectors has been widely used for this purpose.

----,----, YTTRIUM, ZIRCONIUM,NIOBIUM,MOLYBDENUM.

164. Chaghtai, Mirza Said-uz-Zafar. XUV studies of highly ionized atoms of Yttrium, Zirconium, Niobium and Molybdenum resonance transitions. Deptt. of Physics, 1981, 82 l ill. References: 77-82 l. Supervisor: Israr Ahmad.

Analysis of resonance transitions, mainly in nine emission spectra, viz. Zr, V, Vi, vii, Nb vi,vii, viii, ix and Mo vii, viii; three of them are isoelectronic with the neutral atom of kr, three others with Br, two with Se and one with As. The basic aspects of atomic theory, involved in the spectral analyses.

----, OPTICS,BORATEGLASSES,FASTION, VIBRATION, DYNAMICS.

165. Diwedi, Basant Prakash. Vibrational dynamic of fast ion conducting (FIC) borate glasses. Deptt. of Physics. 1993, V, 247 l. ill. References: 52-7,100-1,126-27,163-64,204-06,236-38 l. Supervisor:B.N. Khanna.

Raman scattering studies of borate glasses in the systems xM_2O . $(1-x)B_2O_3$ (M=Li, Na,K, Ag) and xM'O, $(1-x)B_2O_3$ (M=Cd, Zn) for different values of x have been carried out to understand the structure of these glasses. The addition of metallic oxides results in the progressive formation of different cyclic borate rings such as tri-, tetra-, penta-, meta-, pyro- and orthoborate groups along with the destruction of some of these groups. The study of oxide glasses with higher ionic conductivity has become promising in the development of solid state devices such as microbatteries, etc. Li^+,Na^+,K^+,Ag^+ are known to show high conductivities in glasses.

---------,SOUND, HINDI, CONSONANTS,PHONEMES,SEGMENTATION

166. Arshad Ahmad. Study of perceptual cues of some hindi consonants by electronic segmentation Technique. Deptt. of Physics, 1981, 126 l. References: 120-26 l. Supervisor: Teacher's candidate.

Studies of the acoustic properties of phonemes in general and consonants in particular, in different languages. The methodology essentially consist in the identification of the phoneme samples. Present acoustic study shows a clear cut difference in the closure intervals of the aspirated (115 ms) and unespriated (180 ms), voiced (130 ms) and voicles (165 ms) word-final stops. A perceptual study of variation in duration of the closure interval as a cue for unaspirated and aspirated, voiceless and voiced categories of the stops in syllable - final position may be done after a thorough acoustic study of the stops in the same position.

----,----,----, VOWEL, STATISTICS,SPECTROSCOPY.

167. Israr Khan. Statistical Study of hindi speech sounds. Deptt. of Physics. 1990. 140 l. References: 130-39 l. Supervisor: S.K. Gupta.

Attempts at enriching the statistics by dealing with a large volume of data derived from different representative

sources and extracting more meaningful and varied information by using computers and carrying out relevant preception tests and spectropgraphic analysis. A smaller corpus size is adequate for obtaining the relative frequency of occurance of hindi text characters. The cumulative weight of frequency of matra, ignoring the presence of /ʌ / in the word final position, is 43.433% and that of vowel letters is 4.132%. The average number of consonants per vowel turns out to be 1.10. A spectral study of vowels contained in both the contexts uttered by two males and one female speaker was also carried out using kays Electric Co. Sona -Graph Model 7029 A.

----,SUPERCONDUCTOR, NUCLEAR, ELECTRON,CONSTITUENT

168. Punnoose, Alex. Electron paramagnetic resonance studies of the constituents of high temperature super conductors. Deptt. of Physics, 1993. iv, 154 l. References: 16,69-83, 101-03,115-16, 126-27, 144-45,152 l. Supervisor R.J.Singh.

Instrumental set up is included with specific attention to the JEOL , JES-RE 2 x ESR spectrometer employed. The deserved EPR silence of cooper in the high-Tc superconductors

are also critically discussed. The EPR uinvestigation of CuO powder annealed in the range of 100°C to 700°C. The emergence of EPR signals in the annealed samples of the otherwise EPR silent upric oxide and the EPR spectral variation with annealing temperatures are explained in terms of the changes in the magnetic interactions in CuO, which occure as a result of the changes in the oxygen content.

STATISTICS, CONCAVE, QUADRATIC, PROGRAMMING.

169. Abdul Quddus. Concave. quadratic programming. Deptt. of Statistics. 1984. 121 l. References : i - viii l. Supervisor : Zahirul Islam.

The procedures for solving the concave programming problems in the cutting plane method which systematically explores the vertices of the solution space to find the global minimum for the problem. The strategy adopted here is to remove, at each interation, a local minimum to the problem by introducing a new cutting plane to the constraint set. Further improvement in the out has been made which removes from the feasible set a local solution of the problem along with many presently determined varities without disturbing the optimal solution. Some real life problems are shown to reduce to concave quadratic programming problem and concave fixed charge problems.

------, -----, -----, -----, MATHEMATICAL.

170. Khamees, Sohi Jassim. Concave quadratic programming. Deptt. of Statistics. 1987. 93 l. References : (i)-(xii) l. Supervisor : Sanaullah Khan.

Quadratic programming, as a subject forms one of

the classical fields of mathematical programming problems in which one requires to find the best or optimal solution to problems that are expressed mathematically by objective function and a certain set of constraints. Present a finite procedure for maximiging a convex quadratic function subjected to some linear constraints which experiences a rapid convergence for small sized problems. The cutting plane developed here is based on the second adjacent problems. The cutting plane developed here is based on the second adjacent point of the current local solution. The comprison of the adjacent plane method with some other procedures for concave quadratic programming. A branch and bound procedure for minimization of a concave quadratic function subjected to ,certain linear constraints and non-negativity restrictions where some of the variablesare requires to be integers. Numerical examples is given to illustrate the procedures and developments.

------, INFORMATION, MEASUREMENT, CODING THEORY.

171. Haseen Ahmad. Some measure of Information, Deptt. of Statistics. 1985. 74 l. Bibliography (i)-(ix) l. Supervisor : Zahiruddin.

The development presented here represents a step

towards generalizing various measures of information, their characterizations axiomatically and applications to coding theory. Introduce a generalized measure of in accuracy : $I_n^{(\alpha,\beta)}(P,Q) = (2^{1-\beta}-1)^{-1}(\Sigma p_i^{\alpha} q_i^{\beta-\alpha} - 1), \beta > \alpha > 0$ and the characterization of this measures is given axiomatically. A measure of information based on three distributions and called it Information Improvement measure. A generalized non additive entropy and entropy of order α for the power distribution and coding theorems for these measures have been established. Established some results on coding theorems for personal probability codes by consisting a measure of inaccuracy: $H_\alpha(P,Q) = \frac{\alpha}{\alpha-1}\left[1-(\Sigma p_i q_i^{\alpha-1})^{1/\alpha}\right], \alpha > 0, \neq 1$. and average code length $L_\alpha = \frac{\alpha}{\alpha-1}\left[1 - \Sigma P_i D^{-n_i}\right]^{(\alpha-1/\alpha}, \alpha > 0, = 1$. Proved a generalized coding theorem for a noiseless channel with independent input symbols.

-------, -------, MEASUREMENT, R-norm.

172. Ibne Saad. R-norm and some other measures of information. Deptt. of Statistics. 1984. 105 l. Bibliography : (i) - (v) l. Supervisor : Mohd. Zubair Khan.

The R-norm information measure is a new measure for which it is worthwhile to consider further properties. The R-norm information measure being a quite complicated function, has raised several interesting problems. Char-

acterize the measure using the concept of generlized entropy function. Generalization of R-norm information measure and establish the relationships of these with various entropies. Give noiseless coding theorems which are of significant importance in information theory. The concept of measure of inaccuracy has been extended to R-norm inaccuracy measure. A parametric extension of thiel's information improvement functions indeed . For the characterization of additive and non-additive information measures the branching property has been great importance.

-----, MULTIVARIATE, MATHEMATICAL PROGRAMMING.

173. Mohmmad Arshad. Multivariate Statistics and mathematical programming. Deptt. of Statistics. 1979. 73 l. References : (i) - (vii) l. Supervisor : Sanaullah Khan.

Mathematical programming and multivariate statistics are the disciplines in both of which one usually optimises a certain function of variables. Developes some optimisation procedure which have been shown to be useful in solving the problem in multivariate sample surveys. An application of quadratic programming is proposed in solving the problem of stratification in multivariate sampling. The stratification problem is formulated as a non-

linear programming problem. The computational procedures for approximation is illustrated. A problem of quadratic programming which can be solved by using the techniques which is developed in this thesis.

-----, SAMPLING, BAYSIAN, MULTIVARIATE, OPTIMIZATION.

174. Zahirul Islam. Some optimization problems in multivariate baysian sampling. Deptt. of Statistics. 1981. 61 l. References : (i) - (iii) l. Supervisor: Sanaullah Khan.

The theory of sampling is concerned with the development of most precise procedures of sample selection and with the construction of good estimates of certain parameters of the population understudy. The strategy used is to obtain minimum posterior variance of the mean for each of the P characters. The problems in various situation are shown to be reduced to that of convex programming with multiple objective functions. The preposterior and posterior analysis is employed and the posterior variances for all the characters are minimized subject to the cost restriction. The prior distribution is conjugate.

-----, STOCHASTIC, RELIABILITY.

175. Arif-al-Islam. Stochastic processes and reliability. Deptt. of Statistics. 1978. 92 l. References : (i)-(iii) l. Supervisor : S.M. Ali.

The failure distributions play a key role in most aspects of Reliability theory. A new failure distribution has been proposed which we feel is more suited as compared to the aforesaid distributions for and further inferencial problems are carried out. e.g. finding estimates of parameters, their distribution functions and tests of hypothesis on the basis of observation. Another parameter ofthe proposed distribution and the distribution function of that estimator. The gamma failure has been carried out.

------, THEOREM, SUPER-CRITICAL, BRANCHING.

176. Irshan Ahmad Khan. Some limit theorems for super-critical branching processes. Deptt. of Statistics. 1978. 61 l. References : (i) - (vi) l. Supervisor: Sirajur Rehman.

Considers the Getton Wateon model. This model is of considerable importance. It can be wholly or partially generalized to more complicated models. Two diamensional branching process also considers. A sequence

of vector random variables $\bar{Z}_n$, n = 0,1,2, ... where Z_n^i represents the number of objects of the ith type in the nth generation. An estimate of the matrix of the first moments could be obtained. The problem of estimating the probability of eventual extinction of the process. The growth or extinction of a mutation in a genetic population can be viewed as a banking process. The behaviour of two dimensional emperical generating function and its derivates as estimates of two-dimensional probability generating function and its derivatives, which will needed for estimating the probability of eventual extinction.

ZOOLOGY, ECOLOGY, SEA, INSHORE WATER, ORGANIC PRODUCTION.

177. Abidi, Saiyed Arif Husain. Studies on the organic production of the inshore waters of the Arabian Sea. Deptt. of Zoology. 1981. 276 l. References : 256 - 76 l. Supervisor : S.Z.Qasim.

Four different regions in the inshore waters of the Arabian Sea have been presented. The different parameters such as physical, chemical and biological operating in each environment have also been discussed. Four important areas on the west coast of India, namely, Cochin, Goa, Bombay and Navapur were studied to derive some knowledge on the ways in which the ecosystems at these places function. The work also includes some informations on the polluted and semi-polluted ecosystems occuring in the Bombay waters.

-----, ENTOMOLOGY, CRYSOMYAMEGACEPHALA, REPRODUCTION, BIOLOGY.

178. Bansal, Archana. Biological studies on crysomya megacephala F., with special reference to reproductive Biology. Deptt. of Zoology. 1988. ii, 214 l. ill. Bibliography : 169 - 214 l. Supervisor :Humayun Murad.

Various chemical constituents like protein, nucleic

acids, glycogen, phospholipid and cholesterol have been studied in the ovarian tissues and haemolymph of C. megacephala in relation to age, stravation, food and matting. However, the estimation of phospholipids and cholesterol in the heamolymph could not be taken. The common availability of the Chrysomya megacephala Feb. and its economic importtance. In the present study efforts have also been made to obtain information on the relationship of age, sex and nutrition to the reproductive development of C. megacephala.

---------, PESTS, PRODUCTION, PHOSPHATASES, DYDERCUSCINGULATUS, HIEROGLYPHUS, NIGROPLETUS.

179. Mohd. Asif Khan. Observations on the activity of phosphatases in relation to growth and reproduction of certain msect pests. Deptt. of Zoology. 1982. 207 l. References : 198 - 207 l. Supervisor : Mumtaz Ahmad Khan.

The present investigation deals with the activity of non-specific phosphatases in relation to growth and reproduction in Dysdercus cingulatus Fabr. and Hieroglyplus nigrorepletus Boliv. which are different in food

habits. The former species is a serious pest of cotton whereas the latter causes enormous damage to kharif crops in India. The acid and alkaline phosphatases activity have also been studied in these pests following the treatment with two different insecticides. i.e. Dieldrin, a chlorinated hydrocarbon and carbaryl, 1-nephthyl methyl carbomate (Sevin) which is a broad spectrum carbomate compound.

-----, -----, ECOLOGY, CHROTOGONUS TRACHYPTERUS, TOXICOLOGY, PESTICIDES.

180. Ashraf Husain. Toxicology of certain chemical pesticides to Chrotogonus trachypterus blanch. Deptt. of Zoology. 1983. 121 l. Reference : 104 -21 l. Supervisor : Nawab H. Khan.

The surface grosshopper, Chrotogonus trachypterus (Blanch.) attacks seedlings of cotton, sugareane, wheat, maize, and many other crops in India, belongs to the family acridiadae and sub family Pyrogomorphinae. The genus Chrotogonus includes five species of which two occur in India. A number of control measures including collection by nets, trapping and use of poison baits have been practiced against grasshoppers. It ascertains the chemosterilization effect of the above compounds on the male and female C. trachypterus. Efforts have also

been made to investigate the gross effect of these chemicals on the fecundity of the insect.

------, ------, ------, CHRYSOMIADEFIXA, CHEMICAL TOXICANTS, SENSITIVITY, PESTICIDES, LUCILIA CUPRINA.

181. Badar Iftekhar. Ecology of the Myiasis producing fly, Chrysomyia Defixa together with a study of its sensitivity to Chemical toxicants. Deptt. of Zoology. 1981. 195 l. ill. References : 180-95 l. Supervisor : Nawab H. Khan.

The sensitivity of malathion, trichlorfon, DDUP endrin, HCH and sevin to pre-adult and adult stages of Chrysomyia defixa is evaluated to obtain precise base line data on the relative efficacy of the selected pesticides. Effects of toxicants on the hatchability ofthe eggs are also studied. The author is optimistic that by plending ecological and behavioural observations with the use of chemical toxicants, it may be possible to evolve suitable strategies for supressing field populations of the myiasis producing fly, Chrysomyia defixa.

------, ------, ------, GREGARIOUS, ACRIDIODS, NORTH INDIA.

182. Abdul Basit. Ecological studies on some occasionally gregarious acridoids of North India. Deptt. of Zoology. 1980. iii, 217 l. ill. Bibliography : 217-43 l. Supervisor : S. Kamal A.Rizvi.

Author studies the adults of oedaleus abruptus and Gastrimargus africanus which are found in short and tall grasslands. The most important aspects of the present studies has been the morphometery of these two grasshoppers in nymphal as well as adult stages. Out of 24 different measurements and 8 ratios, about 12 body parts and 5 ratios. Visual observations on few aggregation in Oedaleus abruptus and Gastrimargus africanus are an additional confirmation to their unusual locust like behaviour.

-------, ------, ------, OXYAVELOX FAB. BIONOMICS.

183. Ajmal A. Aziz. Studies on Bionomics and life history of Oxya Velox Fab. (Orthoptera : Acrididae) with reference to behaviour of its hoppers to ecological factors. Deptt. of Zoology. 1981. 178 l. ill. Bibliography : 162- 78 l.Supervisor : S.A. Aziz.

The smaller rice gross-hopper Oxya velox Fab.,

is one of the serious pests of paddy crop. The crop has been damaged as much as 20 per cent by this pest, female being slightly larger than the males. The development of the hoppers are affected in a similar manner where the rate of development was directly undirected. The present study further reveals that Oxya velox Fab. is quite vulnerable as for as the stresses of the environment are concerned and probably due to this characterstics it remaines as a sporadic pest in Aligarh District, U.P.

-----, ----, GRILLIDS, GRILLUS MITRATUS, GRITUS DOMESTICUS, SOUND PRODUCTION, MECHANISM.

184. Abdul Rauf. Mechanism of sound production and related responses in some species of Gryllids. Deptt. of Zoology. 1986. 127 l. References : 110 - 27 l. Supervisor : Humayun Murad.

In the present study Grylus mitratus and G.domesticus exhibit interaction between rhythms. These species have a variable chriprate at any given temperature while in other species which have a more or less definite and fixed chirp rate at a particular temperature. The singing in chorus of a few calling males of G.sigillatus and G.domesticus is a feature commonly observed in the labo-

ratory and field conditions at night. Few calling males (1 -3) particularly of G. sigillatus may sing out of chorus. Chorus enhances the sound output and lures more females. Most of the crickets studies start calling after sunset except G. sigillatus and petronemobius fascipes.

-----, ENTOMOLOGY, HYMEHOPTERA and COLEOPTERA and LAPIDOPTERA and INSECTICIDES.

185. Ameena Ahmad. The study of Haemocytes of some insects. Deptt. of Zoology. 1986. 311 l. ill. References : 284 - 310 l. Supervisor : Mumtaz Ahmad Khan.

The haemocytes of all castes of yellow wasp Polistes hebroeus Fabr. (Hymehoptera), adults of Aulacophora foveicollis Lucas (Coleoptera), Mylabris pustulats Thunberg (Coleoptera), larvae and adults of Spilosoma oblique Wlk.(Lepidoptera), Spodopters litura Fabr. (Lepidoptera) and nymphs and adults of Hieroclyphus nicrorepletus Boliv. (Orthopetera)by employing the conventional histological stain which are use on the blood cells of vertebrates. Effect of topical application of sub-lethal concentrations of DDT and Furdan respectively has also been observed on the glycogen

reserve in the different haemocytes of both the species with a view to find out the synthesis and storage og glycogen in insects treated with chemicals.

----, ----, -----; ENCYRTIDAE, TETRACNEMINAE.

186. Anis Fatma. Studies on the taxonomy of the sub family Encyrtine (Hymenoptera : Encyrtidae). Deptt. of Zoology. 1989. 293 l. References : 251 -91 l. Supervisor : S. Adam Shafi.

Studies on the taxonomy of the subfamily Encyrtinae, Encyrtidae. The subfamily Encyrtidae is supposed to be evolved from Tetracneminae. The subfamily Arrhenphaginae and the tribes Encyrtini and Bothriothoracini have evolved independently from Encyrtinae. The subtribes Pseudaphycina is probably the highly evolved sutribe of Bothriothoracini and represent an offshoot of Microteryina.

-----, -----, SACCARICOCCUS SACCARI and FERRISIA VIRGATA CKLL., HOST-PEST, INTERACTION.

187. Atiqui, Muzaffaruddin Ahmad. Studies on the mealy bugs with special reference to interaction between host and pest. Deptt. of Zoology. 1987. 197 l. ill. Bibliography : 176 - 97 l. Supervisor : H.Murad.

The study in the context has been made under

two parts... first, effect of S. sacchari on the host-plant and secondly, the factors affecting the infestation of S. sacchari. In the present study two mealy bugs have been selected. The pink sugarcane mealy bug, S. sacchari Ckll. forms the basis of this work while Ferrisia virgata Ckll. has received limited attention. Efforts have also been made to study the distribution and seasonal population variations in relation to agro-climatic conditions, of both the mealy bugs. The natural enemies of both the mealy bugs, the parasites and predators have been reviewed. The life-history studies of mealy bugs have been carried out under controlled condition.

-----, -----, SARCOPHAQA RUFICORNIS, BIONOMICS, CONTROL, INSECTICIDE.

188. Ansari, Mohd. Shafiq. Bionomics and control of the fleshfly, Sarcophaqa Ruficornis fabr. Deptt. of Zoology. 1985. 129 l. References : 112 - 29 l. Supervisor : Humayun Murad.

The present study is to find out the baseline data on the susceptability of S. ruficornis against selected insecticides. The larual stages are most active and gregarious phase in the developmental cycle of

S.ruficornis. DDT, gamma HCH, Endosulfan, DDVP, fenthion, fenitrothion methyl parathion, ethyl parathion, malathion and propoxur were tested against the early (24-hr old) and late (48-hr old) third instar larvae by means of residual film method and topical application. The present work has been undertaken to find out the effect of gamma HCH, DDVP, fenitrothion and propoxur on the biological characteristics of this species.

-----, FISHERIES, CHANNA PUNETATUS, TOXIC, BEHAVIOUR.

189. Asfa Mumtaz. Behaviour of the fresh water fish, Channa Punetatus Bloch., under toxic environment. Deptt. of Zoology. 1984. 129 l. ill. References : 118 - 29 l. Supervisor : Nawab H. Khan.

The present studies on the toxicity of the commercially important fish, Channa punetatus Bloch. to mercury, copper and zinc are therefore undertaken. Statistical analysis was made to determine the LC_{50} value for 24, 48, 72 and 76 hours, and to find out the relative toxicity and presumable harmless concentration values of the three metals. The amount of oxygen consumed using residual oxygen method in the higher and lower concentration of the metal salts. The estimation of the pathogenecity of heavy metals to C.punetatus. For this purpose

the histopathological aberrations produced by mercury, copper and zinc in the gills, lever and kidney ware studies by exposing the fishes of acute and sub-acute levels of these metals.

-----, ----, G.CHAPRA, BIONOMICS, MORPHOMETRIC., U.P.

190. Ansari, Abdul Rahman. Morphometries, Fishery and biology of some fresh water food fishes of U.P. Deptt. of Zoology. 1982. 121 l. ill. Bibliography: 97 - 121 l. Supervisor : Saleem Mustafa.

Detailed investigations on biology and bionomics of G.Chepra are presented in this theses. Deals with physical-chemisal limonology of these reservoirs. Environmental fluctuations imfluenced the fished undoubtedly but remained within their tolerable limits. Analysis of the relationship between length and weight of G.chapra revealed that in males and females of Baigul as well as Nanaksagar. Observations are made on certain aspects of the reproductive biology of G.chapra. Sex ratio differed in differnt year classes varied with the season. Results prove that G.chapra was non-fractional spawner.

-----, -----, H.FOSSILIS, BIOLOGICAL, NUTRITION, ENERGY.

191. Md. Abul Hasnat. Energy nutrition and biological aspects of energetics in selected cultivable fish species. Department of Zoology. 1993. iii, 111 l. ill. Bibliography:93-111 l. Supervisor : A.K.Jafari.

Changes in annual calorific of various somatic and gonadal tissues, and biological indices of mature male and female catfish, H.fossilis, collected from northern part (Aligarh) of India, are described and discussed. The biological indices studies, shows significant annual changes in the two sexes, except condition factor in male. Excepting the gonado-somatic index, the various indices shows significant differences between the sexes. Variations in calorific value of trunk muscle, liver, gut and gonad found significant over the year.

------, -----, TELEOSTEAN, HEMATOLOGY.

192. Ajmal Murad. Hematological studies on teleostean fishes : assessment of health, effects of certain variables and stressors. Deptt. of Zoology. 1983. 91 l. Bibliography : 71- 91 l. Supervisor :S.Mustafa.

Hematological 'tools' have proved valuable in

assessing the physiological well being fishes. Study of responses to environmental factor including water pollutants. Evaluating the performance of articificial diets and monitoring health and living status of fish. Establishes a normal blood profile of commercially important Indian major carps, namely Catla catla, Labeo rohita and Cirrhina mrigala. Studies changes in hematological profile of fish fed different types of artificial feeds. Data pertaining to blood characterstics have been discussed in conjunction with growth promoting effect of the feed mixes.

------, GENETICS, INBREEDING, MULTILOCUS SYSTEM.

193. Badaruddoza. In breeding and genetic studies on certain quantitative traits in a population from U.P. (India). Deptt. of Zoology. 1992. x, 247 l. ill. Bibliography : 226 - 47 l. Supervisor : Mohammad Afzal.

Effect of genotypic differences between homozygotes and heterzygotes of involved genes of multilocus system determining various characters viz., (i) anthropometric, (ii) Psychometric, (iii) Physiometric and (iv) dermatoglyphic variations in the Qureshi Muslims of Aligarh City, A sizable proportion among the Muslims of Aligarh city are of Ansari (Weaver) and Qureshi (meat seller) groups.

------, ------, MOSQUITOES, AEDS, CULEX, ANOPHELES, KAYO TYPE, BANDING PATTERN, CHROMOSOME.

194. Anjum Ara. A karyotype study by the banding patterns of three genera of mosquitoes aeds, culex & Anopheles. Deptt. of Zoology. 1985. 282 l. ill. References : 242 - 82 l. Supervisor : Usman M. Adhami.

The different banding pattern studies are the G.C.R and N, bandings. The chromosome morphology of some commonly available Indian and foreign mosquito species as revealed by the banding pattern techniques. This study also included determination of the extent of differences between the chromosomes of the three genera of mosquitoes, Culex, Aedes and Anophele. The larvel tissues were used in the preparation of Chromosome slides. Metaphase stages were obtained from the brain and gonadal tissues of fourth instar larvae using a modified air drying method.

-----, NEMATOLOGY, TAXONOMY, MORPHOLOGY, PHYSIOLOGY, BEHAVIOUR.

195. Bilgrami, Anwar L. Observations of the behaviour of nematodes. Deptt. of Zoology. 1983. 173 l. References: 153- 73 l. Supervisor: Shamim Jairajpuri.

Studies on nematode behaviour were largely

neglected during the era when extensive research on their taxonomy, morphology, biology, and physiology was being pursued enthusiastically. The reason probably was their microscopic size and their habitats - marine, freshwater, soil and as parasites of plant and animals. The behaviour of nematodes under natural conditions has almost entirely escaped observations.

-----, PARASITOLOGY, FASCIOLA GIGENTICA COBBOLD, MORPHOLOGY, HISTOLOGY.

196. Ahmad Zaman. Morphological and histochemical studies on Fasciola Gignatica Cobbold, 1855. Deptt. of Zoology. 1981. 98 l. ill. References: 74 - 94 l. Supervisor : Hisamuddin Farooqi.

Deals with preliminary morphological and histochemical investigations related to various systems of F.gigantica. The fogument and the parenchyma it's salient morphological features of the respective regions and their cellular components have been described. The arrangement of different patterns of musculature, nervous system and excretory system are also given. The reproductive system elaborates the male and female components and gonadal anomalies observed.

------,-----, HELMINTH PARASITES, ANTHELMINTIC DRUGS, METABOLISM.

197. Mohammad Ahmad. Effect of some anthelmintic drugs on the metabolism of some helminth parasites. Deptt. of Zoology. 1984. ix, 206 l.ill. References : 177-206 l. Supervisor : Wajih A. Nizami.

Investigate the mode of action of common anthelimintics, in order to workout the possible site of drug actionin the parasites. The studies are made on the freshly prepared homogenates of the worms as well as on the intact worms. Drugs having an effect on the homogenates in vitro may react differently. Effect of some anthelmintics namely mebendazole, fenbendozole, metrifonate and oxyclozanide have been investigated on the parasites understudy. The mode of action of these anthelmintics have been studied on physiological biochemical basis.

------,-----, PSEUDOCOCCIDAE,COCCIDAE, HOMOPTERA, CHACIDOID, TAXONOMY.

198. Avasthi, Rajendra Kumar. Taxonomy of pseudococcidae and coccidae (Homoptera) with some observations on their chacidoid parasites. Deptt. of Zoology. 1980.392 l. ill.References: 337-92 l.Supervisor: S.Adam Shafi.

Studies on the taxonomy of the families Pseudo-

coccidae and Coccidae and some observation on their Chaicidoid parasites. Significances of morpho-functional peculiarities in the composition of parasite female abdomen in adoptation to the group of nost is discussed. The permanent slides are examined under the microscope in order to make a detail study of each component of the body.

------, -----, TREMATODE, HEMOGLOBINS, BIOCHEMICAL, PHYSIOLOGICAL.

199. Khwaja Aftab Rashid. Biochemical and physiological properties of trematode hemoglobins. Deptt. of Zoology. 1994. 118 l. ill. References : 105 - 18 l. Supervisor : Athar H. Siddiqi.

In this study such proteins have been termed hemo globins. Trematode hemoglobins are different from other hemi containing protiens such as peroxidases or catalases in being of low molecular mass and heat resistant. Gastrothylax crumenifer and paramphistomum epiclitum from the rumin and explanatum (= Gigantocotyle explanatum) from the bile ducts of a common Indian water buffalo Bubalus bubalis and Isoparorchis hypselobagri from the swim bladder of a cat fish Wallago attu. Their hemoglogine are purified and their properties are analysed and compared.

-------, RODENT, ECOLOGY RATTUS RATTUS L., BAIT-SHY.

200. Bhardwaj, Devendra. Studies on taste and food preferences and Bait-shy behaviour of 'Roof' rat, Rattus Rattus L. Deptt. of Zoology. 1981. 210 l. ill. References : 196 - 209 l. Supervisor : Jamil Ahmad Khan.

Deals the ecology and behaviour of rodent pests found in vicinity of Aligarh, with the applied aspects of the behaviour of "Roof" rats, R.rattus. The rats,R. rattus L., poisoned with zinc phosphide in mixtures of cereals - millet and maize flour or wheat flour, to which oil of groundnut were also added (5% W/W); avoided the oily baits (bait-shyness), but again selected the corr-esponding mixtures and it's components. If the oil is used in mixtures of cereals, more poisoning, can be obtained with each food added to it.

PART - THREE

INDEX

A U T H O R I N D E X

—

T I T L E I N D E X

Comparative study of the urban centres in the Trans-Ghaghra plain in Uttar Pradesh. 75

Concave quadratic programmings. 169

Concave quadratic programming. 170

Contribution of the study of triple and quadruple Hyper-geometric functions. 123

Coordination chemistry of transition metals involving nitrogen, sulfur and oxygen Donor ligands. 48

Cretaceous sedimentary facies of Narmada basin with special reference to carbonate rocks, Zeerabad-Jobat area, Madhya Pradesh, 29

Distribution and utilization of forest resources Jammu and Kashmir State. 69

Ecological studies on some occasionally gregarious acridoids of North India. 182

Ecology of the Myiasis producing fly, Chrysomyia Defixa together with a study of its sensitivity to chemical toxicants. 181

Effect of some anthelmintic drugs on the metabolism of some helminth parasites. 197

Geology, Geochemistry and Palaeoenvirment of deposition of bounded iron formation of the Kushtagi Schist belt, Karnataka Necleus, India. 86

Geology, Geochemistry and Tectonic setting of conglomerates and quartzites of the Bababudan Schist belt, Karnataka nucleous, India. 94

Geology and Geochemistry of the Singhbhum copper belt (Southern Sector) Bihar, India. 85

Geology of the Aravalli shelf with particular reference to its structural fabrics in "Umra Sector", Udaipur district, (Rajasthan). 112

Geology of the debari group with particular reference to structural fabric in Jaisamand Sector, Udaipur district, Rajasthan. 104

Geology of Vindhyan supergroup in part of Chittorgarh and Bhilwara district(Rajasthan). 113

Glycoenzymes immobilization and stabilization using polyclonal antibodies. 17

Studies on the coordination compounds of transition metals containing ligands of electron rich elements. 49

Studies on the effect of phenylhydrazine on red blood cell membrane. 8

Studies on the genotoxicity of certain metals and their resistance in E.coil and Psuedomonas sp. from sewage water and soil. 16

Studies on the interaction of chemical carcinogens with macromoticular (Interaction of methylgyoxal and quercetin with DNA). 21

Studies on the interaction of mixed mercury(II) Halides copper (I) and silver(I) Halides in solid state. 44

Studies on interaction of root-knot nematodes and root-infecting fungi on air pollution stressed leguminous crops. 2

Studies on the kinetics and mechanism of the colour reactions of - Amino acids and its related compounds. 56

Studies on the management of plant-parasitic nematodes with organic soil amendments. 4

SUPERVISOR INDEX